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(54) Title: COMPOSITIONS FOR COSMETIC APPLICATIONS																											
(57) Abstract																											
<p>A cosmetic composition is described having a cosmetically acceptable carrier, comprising a reverse thermal viscosifying polymer network comprising at least one poloxamer component capable of aggregation in response to a change in temperature randomly bonded to at least one poly(acrylic acid) component; and a cosmetically active agent which imparts a preselected cosmetic effect, said carrier and said agent disposed within an aqueous-based medium.</p>																											
<table border="1"> <caption>Estimated data points from the graph</caption> <thead> <tr> <th>T (°C)</th> <th>3 w% (CP)</th> <th>2 w% (CP)</th> <th>1 w% (CP)</th> </tr> </thead> <tbody> <tr><td>20</td><td>0</td><td>0</td><td>0</td></tr> <tr><td>30</td><td>10000</td><td>10000</td><td>10000</td></tr> <tr><td>35</td><td>100000</td><td>50000</td><td>20000</td></tr> <tr><td>40</td><td>150000</td><td>80000</td><td>30000</td></tr> <tr><td>45</td><td>160000</td><td>100000</td><td>40000</td></tr> </tbody> </table>				T (°C)	3 w% (CP)	2 w% (CP)	1 w% (CP)	20	0	0	0	30	10000	10000	10000	35	100000	50000	20000	40	150000	80000	30000	45	160000	100000	40000
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COMPOSITIONS FOR COSMETIC APPLICATIONS

This application is a continuation-in-part application of copending application
5 U.S.S.N. 60/034,805 filed January 2, 1997, and entitled "Responsive Polymer
Networks and Methods of Their Use", which is a continuation-in-part application of
copending application PCT/US96/10376 filed June 14, 1996, designating the United
States, and entitled "Responsive Polymer Networks and Methods of Their Use", which
is a continuation-in-part application of copending application U.S.S.N. 08/580,986 filed
10 January 3, 1996, and entitled "Responsive Polymer Networks and Methods of Their
Use", each of which is incorporated entirely by reference.

Field of the Invention

The present invention relates to a cosmetic composition useful in a variety of
15 topical and personal care products, including treatments of disorders and imperfections
of the skin or other areas of the body. More particularly, the present invention is
directed to a cosmetic composition comprising a polyoxamer:poly(acrylic acid)
polymer network that can be designed to reversibly gel over a wide range of
conditions to provide a composition having a controllable range of viscosities, making
20 it useful in a variety of cosmetic and personal care applications.

Background of the Invention

Many examples are known of cosmetic compositions intended for treatment of
the skin or elsewhere on the body, where it is desired to have certain properties of
25 viscosity. Hydrogels, such as cellulosics, have been included as thickeners in cosmetic
compositions. A hydrogel is a polymer network which absorbs a large quantity of
water without the polymer dissolving in water. The hydrophilic areas of the polymer
chain absorb water and form a gel region. The extent of gelation depends upon the
volume of the solution which the gel region occupies.

30 Reversibly gelling solutions are known in which the solution viscosity increases

and decreases with an increase and decrease in temperature, respectively. Such reversibly gelling systems are useful wherever it is desirable to handle a material in a fluid state, but performance is preferably in a gelled or more viscous state.

A known material with these properties is a thermal setting gel using block copolymer polyols, available commercially as Pluronic® polyols (BASF, Ludwigshafen, Germany), which is described in U.S. Patent No. 4,188,373. Adjusting the concentration of the polymer gives the desired liquid-gel transition. However, concentrations of the polyol polymer of at least 18-20 % by weight are needed to produce a composition which exhibits such a transition at commercially or physiologically useful temperatures. Also, solutions containing 18-20 % by weight of responsive polymer are typically very viscous even in the "liquid" phase, so that these solutions can not function under conditions where low viscosity, free-flowing is required prior to transition. In addition, these polymer concentrations are so high that the material itself may cause unfavorable interactions during use.

Another known system which is liquid at room temperature, but forms a semi-solid when warmed to about body temperature is formed from tetrafunctional block polymers of polyoxyethylene and polyoxypropylene condensed with ethylenediamine, commercially available as Tetronic® polyols. These compositions are formed from approximately 10% to 50% by weight of the polyol in an aqueous medium. See, U.S. Patent No. 5,252,318.

Joshi *et al.* in U.S. Patent No. 5,252,318 reports reversible gelling compositions which are made up of a physical blend of a pH-sensitive gelling polymer (such as a cross-linked poly(acrylic acid) and a temperature-sensitive gelling polymer (such as methyl cellulose or block copolymers of poly(ethylene glycol) and poly(propylene glycol)). In compositions including methylcellulose, 5- to 8-fold increases in viscosity are observed upon a simultaneous change in temperature and pH for very low methylcellulose levels (1-4% by weight). See, Figs. 1 and 2 of Joshi *et al.* In compositions including Pluronic® and Tetronic® polyols, commercially available forms of poly(ethylene glycol)/poly(propylene glycol) block copolymers, significant increases in viscosity (5- to 8-fold) upon a simultaneous change in temperature and pH

are observed only at much higher polymer levels. See, Figs. 3-6 of Joshi *et al.*

Hoffman *et al.* in WO 95/24430 disclose block and graft copolymers comprising a pH-sensitive polymer component and a temperature-sensitive polymer component. The block and graft copolymers are well-ordered and contain regularly repeating units of the pH-sensitive and temperature-sensitive polymer components. The copolymers are described as having a lower critical solution temperature (LCST), at which both solution-to-gel transition and precipitation phase transition occur. Thus, the transition to a gel is accompanied by the clouding and opacification of the solution. Light transmission is reduced, which may be undesirable in many applications, where the aesthetic characteristics of the composition are of some concern.

Thus, the known systems which exhibit reversible gelation are limited in that they require large solids content and/or in that the increase in viscosity less than 10-fold. In addition, some known systems exhibit an increase in viscosity which is accompanied with the undesirable opacification of the composite.

15

Summary of the Invention

It is an object of the present invention to provide a cosmetic composition which includes a component capable of reversible gelation or viscosification.

It is a further object of the invention to provide a cosmetic composition which includes an ingredient capable of gelation or viscosification at very low solids content.

It is another object of the present invention to provide a cosmetic composition which possesses improved flow and gelation characteristics as compared to properties possessed by conventional reversible gelation compositions.

It is a further object of the invention to provide a polymer network composition for use in cosmetic compositions useful as a surfactant or emulsifier in the solubilization of additives and, in particular, hydrophobic additives.

It is a further object of the invention to provide a cosmetic composition which possesses the appropriate thickness, emolliency and cosmetic effect with a minimum of solids content.

30 It is a further object of the invention to provide a polymer network for use in

cosmetic compositions useful as a suspending agent for otherwise insoluble additives.

It is yet a further object of the present invention to provide a composition capable of solubilizing emulsions at elevated temperatures.

It is yet a further object of the invention to provide new and useful cosmetic 5 compositions incorporating the reversibly gelling polymer network composition of the present invention, which take advantage of its unique advantageous properties.

It is yet another object of the present invention to provide reversibly gelling polymer network compositions which are composed of biocompatible polymers.

These and other objects of the invention are achieved with a cosmetic 10 composition which incorporates a poloxamer:poly(acrylic acid) polymer network as a cosmetically acceptable carrier. The polymer network comprises a poloxamer component randomly bonded to a poly(acrylic acid), or PAA, component in an aqueous-based medium, the polymer network being capable of aggregating in response to an increase in temperature. The reverse thermal viscosifying 15 poloxamer:poly(acrylic acid) polymer network includes random covalent bonding between the poly(acrylic acid) component and the poloxamer component of the network. The polymer network may also include some unbound or "free" poloxamer or other additives which contribute to or modify the characteristic properties of the polymer composition.

20 In addition, the cosmetic composition includes a cosmetic agent selected to provide a preselected cosmetic effect. By "cosmetic agent", as that term is used herein, it is meant that the additive imparts a cosmetic effect. A cosmetic effect is distinguishable from a pharmaceutical effect in that a cosmetic effect relates to the promoting bodily attractiveness or masking the physical manifestations of a disorder or 25 disease. In contrast, a pharmaceutic seeks to treat the source or symptom of a disease or physical disorder. It is noted however, that the same additives may have either a cosmetic or pharmaceutical effect, depending upon the amounts used and the manner of administration.

By "cosmetic" as that term is used herein, it is meant the cosmetic and

personal-care applications intended to promote bodily attractiveness or to cover or mask the physical manifestations of a disorder or disease. Cosmetics include those products subject to regulation under the FDA cosmetic guidelines, as well as sunscreen products, acne products, skin protectant products, anti-dandruff products, and deodorant and 5 antiperspirant products.

By "gelation" or viscosification, as that term is used herein, it is meant a drastic increase in the viscosity of the polymer network solution. Gelation is dependent on the initial viscosity of the solution, but typically a viscosity increase in the range of preferably 2- to 100-fold, and preferably 5- to 50-fold, and more preferably 10- to 20-fold is observed in the polymer network which is used in the preparation of the 10 cosmetic compositions of the invention. Such effects are observed in a simple polymer network solution and the effect may be modified by the presence of other components in the cosmetic composition.

By "reversibly gelling" as that term is used herein, it is meant that the process 15 of gelation takes place upon an *increase* in temperature rather than a decrease in temperature. This is counter-intuitive, since it is generally known that solution viscosity *decreases* with an increase in temperature.

As used herein, "poloxamer" is a triblock copolymer derived from poly(ethylene glycol)-poly(propylene glycol)-poly(ethylene glycol) blocks. The 20 poloxamer is capable of responding to a change in temperature by altering its degree of association and/or agglomeration. The aggregation may be in the form of micelle formation, precipitation, labile crosslinking or other factors. The poloxamer has the general formula of a triad ABA block copolymer, $(P_1)_a(P_2)_b(P_1)_a$, where P_1 = poly(ethylene glycol) and P_2 = poly(propylene glycol) blocks, where a is in the range 25 of 10-50 and where b is in the range of 50-70.

The poly(acrylic acid) component includes poly(acrylic acid) and its salts. The poly(acrylic acid) supports and interacts with the poloxamer component so that a multi-material, responsive polymer network is formed. The interaction of the poloxamer and poly(acrylic acid) exhibits a synergistic effect, which magnifies the 30 effect of the poloxamer component in viscosifying and/or gelling the solution.

The novel interaction between the constituent polymers components of the polymer network permits formation of gels at very low solids content. Gelation and/or viscosification is observed in aqueous solutions having about 0.01 to 20 wt% of the poloxamer component and about 0.01 to 20 wt% of the poly(acrylic acid) component.

5 A typical reversibly gelling polymer network may be comprised of less than about 4 wt% of total polymer solids (e.g., poloxamer and poly(acrylic acid)) and even less than 1 wt% total polymer solids while still exhibiting reverse thermal viscosification. Of course, the total solids content including additives of a reversibly gelling polymer network composition may be much higher. The viscosity of the gel increases at least 10 ten-fold with an increase in temperature of about 5°C at pH 7 and 1 wt% polymer. Viscosity increases may be even greater over a larger temperature range at pH 7 and 1% polymer network content.

15 The relative proportion of poloxamer and poly(acrylic acid) may vary dependent upon the desired properties of the polymer composition. In one embodiment, the poloxamer is present in a range of about 1 to 20 wt% and the poly(acrylic acid) is present in a range about of 99 to 80 wt%. In another embodiment, the poloxamer component is present in a range of about 21 to 40 wt% and the poly(acrylic acid) component is present in a range of about 79 to 60 wt%. In another embodiment, the poloxamer component is present in a range of about 41 to 50 20 wt% and the poly(acrylic acid) component is present in a range of about 59 to 50 wt%. In another embodiment, the poloxamer component is present in a range of about 51 to 60 wt% and the poly(acrylic acid) component is present in a range of about 49 to 40 wt%. In yet another embodiment, the poloxamer component is present in a range of about 61 to 90 wt% and the poly(acrylic acid) component is present in a range of about 39 to 20 wt%. In another embodiment, the poloxamer component is present in a range of about 81 to 99 wt% and the poly(acrylic acid) component is present in a range of about 19 to 1 wt%.

25 The poloxamer:poly(acrylic acid) polymer network described above is included in a cosmetic composition to improve the flow characteristics, thickness and other 30 properties of the composition. The composition includes additional cosmetic agents.

such as are needed for the cosmetic purpose of the composition. Additives also may be included to modify the polymer network performance, such as to increase or decrease the temperature of the liquid-to-gel transition and/or to increase or decrease the viscosity of the responsive polymer composition.

5 In one aspect of the invention, the poloxamer:poly(acrylic acid) polymer network is incorporated into a cosmetic compositions to impart thickening properties to the cosmetic composition at the use and/or application temperature. Such thickening properties include enhanced overall viscosity, as well as a desirable viscosity response with temperature. The polymer network may be useful as a thickener in pH ranges
10 where other thickeners are not effective.

15 In another aspect of the invention, the poloxamer:poly(acrylic acid) polymer network is incorporated into a cosmetic composition to stabilize and solubilize hydrophobic agents in the cosmetic composition. The polymer network may be included to increase emulsion stability. Many emulsions, i.e., suspension of small droplets or particles of a first material in a second material, lose viscosity upon heating. As will be demonstrated herein, the poloxamer:poly(acrylic acid) polymer network retains its emulsifying properties even with temperature increase.

20 In addition, it may be included in the composition to impart emolliency to the composition. The composition may also act as a film-forming agent after it has been applied to the skin. This film-forming agent may be used as a barrier to prevent water loss from the skin which contributes to the moisturization of the skin.

25 In another aspect of the invention, the poloxamer:poly(acrylic acid) polymer network may be included as an additive in cosmetic applications to prevent viscosity loss at elevated temperatures.

Brief Description of the Drawing

The invention is described with reference to the Drawing, which is presented for the purpose of illustration and is in no way intended to be limiting, and in which:

30 Figure 1 is a graph of viscosity vs. temperature for a 1 wt%, 2 wt% and 3 wt% responsive polymer network aqueous composition of a poloxamer/poly(acrylic acid)

(1:1) at pH 7.0 measured at a shear rate of 0.44 sec⁻¹;

Figure 2 is a graph of viscosity vs. temperature for a 1 wt% poloxamer: poly(acrylic acid) polymer network composition demonstrating reversibility of the viscosity response;

5 Figure 3 shows the viscosity response of a 2 wt% poloxamer:poly(acrylic acid) polymer composition at various shear rates;

Figure 4 shows a viscosity response curve for a 2 wt% poloxamer: poly(acrylic acid) polymer network composition prepared with nominal mixing and stirring and prepared using high shear homogenization (8000 rpm, 30 min);

10 Figure 5 is a graph of viscosity vs. temperature for a 1 wt% poloxamer: poly(acrylic acid) polymer network composition at various pHs;

Figure 6 is a graph of viscosity vs. temperature for a 1 wt% poloxamer: poly(acrylic acid) polymer network composition with and without addition of 0.25 wt% KCl;

15 Figure 7 is a graph of viscosity vs. temperature for a 1 wt% poloxamer: poly(acrylic acid) polymer network composition with and without addition of 0.5 wt% acetamide MEA;

20 Figure 8 is a graph of viscosity vs. temperature for a 1 wt% poloxamer: poly(acrylic acid) polymer network composition without and with 5 wt%, 10 wt% and 20 wt% added ethanol, respectively;

Figure 9 is an illustration of a reversibly gelling polymer network used as an emulsifier and stabilizer for a hydrophobic agent;

25 Figure 10 is a schematic illustration of the poloxamer:poly(acrylic acid) polymer network below and above the transition temperature illustrating the aggregation of the hydrophobic poloxamer regions;

Figure 11 is a graph of viscosity vs. pH for a 1 wt% responsive polymer network aqueous composition of a poloxamer/poly(acrylic acid) (1:1) measured at a shear rate of 0.44 sec⁻¹;

30 Figure 12 is a plot of viscosity vs. temperature for (a) a 1 wt% responsive polymer network aqueous composition of Pluronic® F127 poloxamer/poly(acrylic acid)

(1:1) and (b) a 1 wt% physical blend of Pluronic® F127 poloxamer/poly(acrylic acid) (1:1) at pH 7.0 measured at a shear rate 0.22 sec⁻¹;

Figure 13 is a plot of viscosity vs. temperature for a 1 wt% responsive polymer network aqueous composition of Pluronic® F88 poloxamer/poly(acrylic acid) (1:1) at pH 7.0 measured at a shear rate 2.64 sec⁻¹;

Figure 14 is a graph of the viscosity vs. temperature effect for a responsive polymer network composition of 2 wt% Pluronic® P104 poloxamer/poly(acrylic acid) (1:1) in deionized water at pH 7.0 measured at shear rate of 22 sec⁻¹;

Figure 15 is plot of viscosity vs. temperature for a responsive polymer network composition of 2 wt% Pluronic® F123 poloxamer/poly(acrylic acid) (1:1) at pH 7.0 measured at a shear rate of 22 sec⁻¹;

Figure 16 is a plot of viscosity vs. temperature for 1 wt% made of series of poloxamers and poly(acrylic acid) (1:1) in deionized water at a shear rate of 132 sec⁻¹;

Figure 17 is a plot showing release of hemoglobin from a poloxamer/poly(acrylic acid) polymer network of the invention:

Figure 18 is a plot showing the release of lysozyme from the poloxamer/poly(acrylic acid) polymer complex of the invention:

Figure 19 is a plot showing release of insulin from a poloxamer/poly(acrylic acid) polymer network composition of the invention:

Figure 20 is a plot of viscosity vs. temperature for a poloxamer/poly(acrylic acid) polymer network composition (a) before and (b) after sterilization by autoclave;

Figure 21 is a plot of viscosity vs. temperature for an oil-free moisturizing formulation prepared from (a) a responsive polymer network composition of the invention and (b) a conventional oil-in-water formulation;

Figure 22 is a plot of equilibrium solubility of estradiol (A, B) and progesterone (C, D) in aqueous solutions (pH 7) of Pluronic® F127 (A, C) and responsive polymer network (B, D) vs. temperature;

Figure 23 is a plot of the ratio of equilibrium solubilities of estradiol in responsive polymer network and water vs. polymer concentration in the responsive polymer network solutions;

Figure 24 is a plot of the effect of loading fluorescein on the onset of gelation of responsive polymer network vs. total polymer concentration in responsive polymer network solution (pH 7.0);

5 Figure 25 is a plot of the percentage of a) estradiol and b) progesterone release from responsive polymer network vs. time;

Figure 26 is a plot of the rate of progesterone release and macroscopic viscosity vs. polymer concentration;

10 Figure 27 is a plot of the percentage of progesterone release vs. polymer concentration in responsive polymer network and,

Figure 28 is a plot of the relative diffusivity of poly(styrene) latex particles in water and responsive polymer network.

Detailed Description of the Invention

The present invention is directed to a cosmetic composition comprising a 15 cosmetically acceptable carrier comprising a novel poloxamer:poly(acrylic acid) polymer network. The polymer network functions as a temperature sensitive thickening agent, and in addition possesses surfactant and emulsifying capabilities which may be beneficial to the cosmetic composition. The polymer network composition according to the invention includes a poloxamer component randomly 20 bonded to a poly(acrylic acid) component. The two polymer components may interact with one another on a molecular level. The polymer network contains about 0.01-20 wt% each of poloxamer and poly(acrylic acid). Exemplary polymer network compositions range from about 1:10 to about 10:1 poloxamer:poly(acrylic acid). Polymer network gel compositions which exhibit a reversible gelation at body 25 temperature (25-40°C) and/or at physiological pH (ca. pH 3.0-9.0) and even in basic environments up to pH 13 (hair care) are particularly preferred for cosmetic applications.

In one embodiment of the invention, a 1:1 poloxamer:poly(acrylic acid) polymer network at appropriate pH exhibits flow properties of a liquid at about room 30 temperature, yet rapidly thickens into a gel consistency of at least about five times

greater, preferably at least about 10 times greater, and even more preferably at least about 30 times and up to 100 times greater, viscosity upon increase in temperature of about 10 °C and preferably about 5 °C. The reversibly gelling polymer network of the present invention exhibit gelation even at very low polymer concentrations. For 5 example, polymer network compositions at pH 7 comprising about 0.5 wt% poloxamer component and about 0.5 wt% PAA exhibits a significant increase in viscosity from a free-flowing liquid (50 cps) to a gel (6000 cps). The observed gelation takes place at low solids contents, such as less than 20 wt% or preferably less than about 10 wt%, or more preferably less than about 2.5 wt% or most preferably less than about 0.1 wt%. 10 Thus, only a small amount by weight of the polymer network need be incorporated into a cosmetic composition in order to provide the desired thickening or viscosifying effect.

The reverse viscosification effect at low polymer concentrations provides clear, colorless gels which are particularly well-suited to cosmetic applications. For example, 15 very little residue is formed upon dehydration which may be important in some applications, such as in topically applied cosmetics. An additional advantage of the polymer network of the invention is that it remains clear and translucent above and below the critical temperature or pH. These characteristics of the reversibly gelling polymer network make it well suited for use in cosmetic compositions.

20 The polymer network of the present invention technology may be added to cosmetic formulations to increase the thickness and viscosity of the composition. The poloxamer:poly(acrylic acid) polymer network possesses hydrophobic regions capable of aggregation. Unlike conventional thickeners, the aggregation of the polymer network of the present invention is temperature sensitive. Thus, the inventive polymer 25 network of the present invention may have a transition temperature (i.e. temperature of aggregation) above room temperature so that the cosmetic composition is of low viscosity at or below room temperature and is of high viscosity at or around body temperature (body temperature includes both surface and internal body temperature). Thus, a composition may be prepared at low temperatures while the polymer network 30 is in a low viscosity state. Mixing of ingredients under low viscosity is expected to be

easier, thus simplifying the manufacturing process. Yet, the resultant mixture would be of increased viscosity at use temperatures. As a further advantage, a cosmetic composition comprising poloxamer:poly(acrylic acid) polymer network may be spread thinly to allow for even application, due to its low viscosity at room temperature, but will thicken and "fill" the skin contours upon warming up to body surface temperature.

5 In another aspect of the invention, the composition may be applied through a nozzle that provides high shear to reduce viscosity, yet the composition regains its viscosity after application to the skin. This contrasts with conventional formulations which permanently lose viscosity after being subjected to high shear.

10 In another aspect of the invention, the composition may be formulated and applied as a liquid, spray, semi-solid gel, cream, ointment, lotion, stick, roll-on formulation, mousse, pad-applied formulation, and film-forming formulation.

15 The poloxamer:poly(acrylic acid) polymer network may also be included in a cosmetic composition for use as a stabilizing, solubilizing or emulsifying agent for a hydrophobic component of the cosmetic formulation. The strong hydrophilic regions of the poloxamer resulting from aggregation and micelle formation create hydrophobic domains which may be used to solubilize and control release of hydrophobic agents. Similar micelle-based systems have been shown to protect trapped peptides against enzymatic degradation from surface enzymes.

20 The reversibly gelling polymer network of the present invention is a unique polymer composition designed to abruptly change its physical characteristics or the characteristics and properties of materials mixed therewith with a change in temperature. Without intending to be bound by any particular mechanism or chemical structure, it is believed that the structure of the polymer network involves a random bonding of the poloxamer onto the backbone of the poly(acrylic acid). A portion of the poloxamer which is present during the polymerization reaction which forms the poly(acrylic acid) is bonded to the backbone of the forming poly(acrylic acid) through hydrogen abstraction and subsequent reaction. See detailed discussion of the mechanism, below. The combination of the poly(acrylic acid) and randomly bonded 25 poloxamer gives the composition its unique properties. Any free poloxamer remaining

after polymerization of PAA remains associated with the random co-polymer, resulting in a miscible composition. Free poloxamer may also be present in the polymer network composition; however, its presence is not required in order to observe reverse thermal viscosification.

5 The poly(acrylic acid) may be linear, branched and/or crosslinked. Poly(acrylic acid) is capable of ionization with a change in pH of the solution. By ionization, as that term is used with respect to poly(acrylic acid), it is meant the formation of the conjugate base of the acrylic acid, namely acrylate. As used herein, poly(acrylic acid) includes both ionized and non-ionized versions of the polymer. Changes in ionic strength may be accomplished by a change in pH or by a change in salt concentration. 10 The viscosifying effect of the polymer network is partly a function of the ionization of the poly(acrylic acid); however, reverse thermal gelling may occur without ionization. Changes to the ionic state of the polymer causes the polymer to experience attractive (collapsing) or repulsive (expanding) forces. Where there is no need or desire for the 15 composition to be applied in a high viscosity state, it may be possible to prepare the composition as non-ionized poly(acrylic acid). The body's natural buffering ability will adjust the pH of the applied composition to ionize the poly(acrylic acid) and thereby develop its characteristic viscosity.

20 The poloxamer possesses regions of hydrophobic character, e.g., poly(propylene glycol) blocks, and hydrophilic character, e.g., poly(ethylene glycol) blocks. The poloxamer may be linear or branched. Suitable poloxamers include triad block copolymers of poly(ethylene glycol) and poly(propylene glycol) having the general formula $(P_1)_a(P_2)_b(P_1)_a$, where P_1 = poly(ethylene glycol) and P_2 = poly(propylene glycol) blocks, where a is in the range of 10-50 and where b is in the range of 50-70. 25 where poly(propylene glycol) represents the hydrophobic portion of the polymer and poly(ethylene glycol) represents the hydrophilic portion of the polymer. Pluronic® polymers (BASF) are commercially available for a in the range of 16 to 48 and b ranging from 54-62. One or more poloxamers may be used in the reversibly gelling polymer network composition of the present invention.

30 The reversibly gelling responsive polymer networks compositions of the present

invention are highly stable and do not exhibit any phase separation upon standing or upon repeated cycling between a liquid and a gel state. Samples have stood at room temperature for more than three months without any noticeable decomposition, 5 clouding, phase separation or degradation of gelation properties. This is in direct contrast to polymer blends and aqueous mixed polymer solutions, where phase stability and phase separation is a problem, particularly where the constituent polymers are immiscible in one another.

An example of the dramatic increase in viscosity and of the gelation of the reversibly gelling polymer network compositions of the invention is shown in Figure 1. 10 Figure 1 is a graph of viscosity vs. temperature for 1 wt%, 2 wt% and 3 wt% polymer network compositions comprising 1:1 poloxamer:poly(acrylic acid), hydrated and neutralized. The viscosity measurements were taken on a Brookfield viscometer at a shear rate of 0.44 sec⁻¹ at pH 7.0. All solutions had an initial viscosity of about 1080 cP and exhibited a dramatic increase in viscosity to gel point at about 35°C. This is 15 not typical of all polymer network compositions since polymerization condition will affect initial viscosity. Final viscosities were approximately 33,000 cP, 100,000 cP and 155,000 cP for the 1 wt%, 2 wt% and 3 wt% compositions, respectively. This represents viscosity increases of about 30-, 90- and 140-fold, respectively. This effect is entirely reversible. Upon cooling, the composition regains its initial viscosity. This 20 is demonstrated in Figure 2, where a 1 wt% poloxamer:poly(acrylic acid) composition is warmed through the transition temperature up to 35 °C (simple curve), cooled to room temperature (24 °C, ticked curve) and then warmed again to up above the transition temperature (open box curve). The viscosity response was virtually identical in all three instances.

25 As would be expected with a non-Newtonian system, the solution viscosity differs with different shear rates. Figure 3 shows the viscosity response of a 2 wt% poloxamer:poly(acrylic acid) polymer composition at various shear rates. The viscosity response is consistent between 24 °C and 34 °C; however, the final viscosity is reduced with increasing shear rate.

30 However, unlike many prior art hydrogels, e.g., carbomers, the

poloxamer:poly(acrylic acid) polymer network composition does not permanently loose viscosity after being subjected to high shear conditions. The poloxamer:poly(acrylic acid) polymer network composition remains unaffected by such shear conditions as homogenization. Figure 4 compares the viscosity response curve of a 2 wt% 5 poloxamer:poly(acrylic acid) polymer composition prepared with nominal mixing (simple lime) and stirring with that of a polymer composition of similar composition prepared using high shear homogenization designated by a ticked line (8000 rpm, 30 min). No significant decrease in viscosity is observed.

A number of factors influence the viscosity and transition temperature of the 10 composition. The more important factors include polymer concentration, pH and presence and nature of additives.

The effect of pH on the viscosity of reversibiy gelling polymer networks is shown in Figure 5. Increasing pH from the starting pH has a lesser effect on the viscosity than decreasing the pH. This may relate to the extent of ionization of the 15 poly(acrylic acid) component of the polymer network as discussed above. This may be clearly seen in Figure 5 when comparing the viscosity response of a 1 wt% poloxamer:poly(acrylic acid) polymer composition at pH 5 and pH 11. Satisfactory viscosities can be obtained at high pHs indicating the potential value of the reversibly gelling polymer network in products such as depilatories, hair straighteners and hair 20 relaxers.

The responsive polymer network may also include additives for influencing the performance of the polymer composition, such as the transition temperature and the viscosity of the polymer composition above the transition temperature. The following 25 list is not intended to be exhaustive but rather illustrative of the broad variety of additives which can be used.

These materials include solvents (e.g., 2-propanol, ethanol, acetone, 1,2-pyrrolidinone, N-methylpyrrolidinone), salts (e.g., calcium chloride, sodium chloride, potassium chloride, sodium or potassium phosphates, borate buffers, sodium citrate), preservatives (benzalkonium chloride, phenoxyethanol, sodium 30 hydroxymethylglycinate, ethylparaben, benzoyl alcohol, methylparaben, propylparaben,

butylparaben, Germaben II), humectant/moisturizers (acetamide MEA, laurimide MEA, hydrolyzed collagen, mannitol, panthenol, glycerin), lubricants (hyaluronic acid, mineral oil, PEG-60-lanolin, PPG-12-PEG-50-lanolin, PPG-2 myristyl ether propionate) and surfactants.

5 Surfactants may be divided into three classes: cationic, anionic, and nonionics. An example of a cationic surfactant used is ricinoleamidopropyl ethyldimonium ethosulfate (Lipoquat R). Anionic surfactants include sodium dodecyl sulfate and ether sulfates such as Rhodapex CO-436. Nonionic surfactants include Surfynol CT-111, TG, polyoxyethylene sorbitan fatty acid esters such as Tween 65 and 80, sorbitan fatty 10 acid esters such as Span 65, alkylphenol ethoxylates such as Igepal CO-210 and 430, dimethicone copolyols such as Dow Corning 190, 193, and Silwet L7001.

The addition of polymers has been studied including xanthan gum, cellulosics such as hydroxyethylcellulose (HEC), carbomethoxycellulose (CMC), lauryldimonium hydroxypropyl oxyethyl cellulose (Crodacel QL), hydroxypropylcellulose (HPC), and 15 hydroxypropylmethylcellulose (HPMC), poly(acrylic acid), cyclodextrins, methyl acrylamido propyl trimmonium chloride (MAPTAC), polyethylene oxide, polyvinylpyrrolidone, polyvinyl alcohol, and propylene oxide/ethylene oxide random copolymers. Poloxamers may also be used as additives. Examples include both the Pluronic® polyols having an $(P_1)_a(P_2)_b(P_1)_a$ structure such as Pluronic® F38, L44, P65, 20 F68, F88, L92, P103, P104, P105, F108, L122 and F127, as well as the reverse Pluronic® R series $(P_2)_a(P_1)_b(P_2)_a$ structure such as Pluronic® 17R2 and 25R8. Other miscellaneous materials include propylene glycol, urea, triethanolamine, alkylphenol ethoxylates (Iconol series), and linear alcohol alkoxylates (Plurafac series).

25 Additives affect the viscosity of the compositions differently depending upon the nature of the additive and its concentration. Some additives will affect the initial or final viscosity, whereas others will affect the temperature range of the viscosity response, or both.

Potassium chloride and acetamide MEA are two examples of additives which decrease the final viscosity of the composition (see, Example 30). KCl (0.25%) added 30 to a 1 wt% reversibly gelling polymer composition reduces the viscosity by about 3000

cps. See, Figure 6. The humectant, acetamide MEA, lowers the viscosity of a 1 wt% solution by approximately 1,500 cps (see, Figure 7).

Glycerin, ethanol and dimethicone copolymer have been shown to affect the temperature range over which the viscosity response occurs. Glycerin shifts the 5 transition temperature to a slightly lower range from an initial 24-34 °C to about 24-30 °C, but does not affect the final viscosity (see, Example 44). The effect of ethanol on the viscosity is different at different concentration levels. At 5 wt% and 10 wt% added ethanol, the transition temperature is shifted to lower ranges, e.g., 24-29 °C and 10 20-29 °C, respectively. At 20 wt% added ethanol, the composition not only exhibits a lowering of the transition temperature, but also a marked increase in initial and final viscosity. See, Figure 8. Dimethicone copolymer (1 wt%) also changed the transition temperature, but in this instance the transition temperature range was raised to 28-41 °C. Thus, proper selection of additives permits the formulator to adjust the transition temperature to various ranges.

15 Those skilled in the art will appreciate that the polymer network compositions of the present invention may be utilized for a wide variety of cosmetic and personal care applications. To prepare a cosmetic composition, an effective amount of cosmetically active agent(s) which imparts the desirable cosmetic effect is incorporated into the reversibly gelling polymer network composition of the present invention. 20 Preferably the selected agent is water soluble, which will readily lend itself to a homogeneous dispersion throughout the reversibly gelling polymer network composition; however, the polymer network has been demonstrated to significantly solubilize or suspend hydrophilic agents in order to improve formulation homogeneity (see, Example 36). It is also preferred that the agent(s) is nonreactive with the 25 polymer network composition. For materials which are not water soluble, it is also within the scope of the invention to disperse or suspend powders or oil (lipophilic materials) throughout the polymer network composition. It will also be appreciated that some applications may require a sterile environment. It is contemplated as within the scope of the invention that the reversibly gelling polymer network compositions of 30 the present invention may be prepared under sterile conditions. An additional feature

of the reversibly gelling polymer composition is that is prepared from constituent polymers that have known accepted toxicological profiles.

The poloxamer:poly(acrylic acid) polymer network has been evaluated under Good Laboratory Practice (GLP) standard protocols known in the art for toxicity in 5 animal models and found to exhibit no toxic effects. The results of the toxicity study are summarized in the following Table 1. The non-toxicity of the polymer network makes it an ideal candidate for use in cosmetic compositions.

Table 1. Toxicity data for 6% poloxamer:poly(acrylic acid) solution at pH 7.

Reaction testes	mode of testing	results
Skin sensitization	guinea pig - topical	not a sensitizer
eye irritation	rabbit eye instillation	negative
primary dermal irritation	rabbit - topical	very slight edema (1 on a scale of 1-8)
acute dermal toxicity	rat - single dose (2g/kg)	no toxicity
acute oral toxicity	rat - single dose (5g/kg)	no toxicity
AMES test		negative

Exemplary cosmetic and personal care applications, for which the reversibly gelling polymer network composition may be used include, but are not limited to, baby products, such as baby shampoos, lotions, powders and creams; bath preparations, such 20 as bath oils, tablet and salts, bubble baths, bath fragrances and bath capsules; eye makeup preparations, such as eyebrow pencil, eyeliner, eye shadow, eye lotion, eye makeup remover and mascara; fragrance preparations, such as colognes and toilet waters, powders and sachets; noncoloring hair preparations, such as hair conditioner, hair spray, hair straighteners, permanent waves, rinses shampoos, tonics, dressings and 25 other grooming aids; color cosmetics; hair coloring preparations such as hair dye, hair tints, hair shampoos, hair color sprays, hair lighteners and hair bleaches; makeup preparations such as face powders, foundations, leg and body paints, lipstick, makeup bases, rouges and makeup fixatives; manicuring preparations such as basecoats and

undercoats, cuticle softeners, nail creams and lotions, nail extenders, nail polish and enamel, and nail polish and enamel remover; oral hygiene products such as dentrifices and mouthwashes; personal cleanliness, such as bath soaps and detergents, deodorants, douches and feminine hygiene product; shaving preparations such as aftershave lotion, 5 beard softeners, men's talcum, shaving cream, shaving soap and preshave lotions; skin care preparations such as cleansing preparations, skin antiseptics, depilatories, face and neck cleansers, body and hand cleansers, foot powders and sprays, moisturizers, night preparations, paste masks, and skin fresheners; and suntan preparations such as suntan creams, gels and lotions, indoor tanning preparations.

10 Preparation of the above-named cosmetic compositions and others may be accomplished with reference to any of the cosmetic formulation guidebooks and industry journals which are available in the cosmetic industry. These references supply standard formulations which may be modified by the addition or substitution of the reversible viscosifying polymer network of the present invention into the formulation.

15 Suitable guidebooks include Cosmetics and Toiletries Magazine, Vol. 111 (March 1996); Formulary: Ideas for Personal Care; Croda, Inc. Parsippany, NJ (1993); and Cosmeticon: Cosmetic Formulary, BASF, which are hereby incorporated in their entirety by reference.

20 The cosmetic composition may be in any form. Suitable forms include but are not limited to lotions, creams, sticks, roll-ons formulations, mousses, aerosol sprays, pad-applied formulations, and film-forming formulations.

25 As those skilled in the art will appreciate, the foregoing list is exemplary only. Because the reversibly gelling polymer network composition of the present invention is suited for application under a variety of physiological conditions, a wide variety of cosmetically active agents may be incorporated into and administered from the polymer network composition. In addition to the poloxamer:poly(acrylic acid) polymer network, additional cosmetically acceptable carriers may be included in the composition, such as by way of example only, emollients, surfactants, humectants, powders and other solvents. By way of example only, the cosmetic composition also 30 may include additional components, which serve to provide additional aspects of the

cosmetic affect or to improve the stability and/or administration of the cosmetic. Such additional components include, but are not limited to, preservatives, abrasives, acidulents, antiacne agents, anti-aging agents, antibacterials, anticaking, anticaries agents, anticeillulites, antidandruff, antifungal, anti-inflammatories, anti-irritants, 5 antimicrobials, antioxidants, astringents, antiperspirants, antiseptics, antistatic agents, astringents, binders, buffers, additional carriers, chelators, cell stimulants, cleansing agents, conditioners, deodorants, dipilatories, detergents, dispersants, emollients, emulsifiers, enzymes, essential oils, exfoliants, fibers, film forming agents, fixatives, foaming agents, foam stabilizers, foam boosters, fungicides, gellants, glossers, hair 10 conditioner, hair set resins, hair sheen agents, hair waving agents, humectants, lubricants, moisture barrier agents, moisturizers, ointment bases, opacifier, plasticizer, polish, polymers, powders, propellant, protein, refatting agents, sequestrant, silicones, skin calming agents, skin cleansers, skin conditioners, skin healing, skin lightening 15 agents, skin protectants, skin smoothing agents, skin softening agents, skin soothing agents, stabilizers, sunscreen agents, surfactants, suspending agents, tanning accelerators, thickeners, vitamins, waxes, wetting agents, liquefiers, colors, flavors and/or fragrances. Suitable materials which serve the additive functions listed here are well known in the cosmetic industry. A listing of the additive function and materials suitable for incorporation into the cosmetic composition may be found in 20 Appendix A, which is appended hereto at the end of the specification. Further information may be obtained by reference to The Cosmetic Bench Handbook, Cosmetics & Toiletries; C.C. Urbano, editor, Allured Publ. Corp., 1996, which is hereby incorporated in its entirety by reference.

A brief description of some preferred additives and cosmetically active agents 25 follows. The compositions of the invention include a safe and effective amount of a cosmetically active agent. "Safe and effective", as it is used herein, means an amount high enough to significantly positively modify the condition to be treated or the cosmetic effect to be obtained, but low enough to avoid serious side effects.

Preservatives can be desirably incorporated into the cosmetic compositions of 30 the invention to protect against the growth of potentially harmful microorganisms.

Suitable preservatives include, but are not limited to, alkyl esters of para-hydroxybenzoic acid, hydantoin derivatives, parabens, propionate salts, triclosan tricarbanilide, tea tree oil, alcohols, farnesol, farnesol acetate, hexachlorophene and quaternary ammonium salts, such as benzalconjure, and a variety of zinc and 5 aluminum salts. Cosmetic chemists are familiar with appropriate preservatives and may select that which provides the required product stability. Preservatives are preferably employed in amounts ranging from about 0.0001% to 2% by weight of the composition.

Emollients can be desirably incorporated into the cosmetic compositions of the 10 invention to provide lubricity to the formulation. Suitable emollients may be in the form of volatile and nonvolatile silicone oil, highly branched hydrocarbons and synthetic esters. Amounts of emollients may be in the range of about 0.1-30 wt%, and preferably about 1-20 wt%. By way of example only, suitable silicones include cyclic or linear polydimethylsiloxanes, polyalkylsiloxanes, polyalkylarylsiloxanes and 15 polyether siloxanes. By way of example only, suitable ester emollients include alkenyl esters of fatty acids, polyhydric alcohols, such as ethylene glycol mono and di-fatty acid esters, polyethylene glycol and the like, ether-esters, such as fatty acid esters of ethoxylated fatty alcohols, wax esters, such as beeswax, spermaceti, myristyl myristate, and stearyl stearate, and sterol esters, such as cholesterol fatty acids.

20 A variety of oily emollients may be employed in the compositions of this invention. These emollients may be selected from one or more of the following classes: 1. Triglyceride esters such as vegetable and animal fats and oils. Examples include castor oil, cocoa butter, safflower oil, cottonseed oil, corn oil, olive oil, cod liver oil, almond oil, avocado oil, palm oil, sesame oil, squalene, Kikui oil and 25 soybean oil; 2. Acetoglyceride esters, such as acetylated monoglycerides; 3. Ethoxylated glycerides, such as ethoxylated glyceryl monostearate; 4. Alkyl esters of fatty acids having 10 to 20 carbon atoms, such as, methyl, isopropyl, and butyl esters of fatty acids, and including hexyl laurate, isohexyl laurate, isohexyl palmitate, isopropyl palmitate, decyl oleate, isodecyl oleate, hexadecyl stearate, decyl stearate, 30 isopropyl isostearate, diisopropyl adipate, diisohexyl adipate, dihexyldecyl adipate,

diisopropyl sebacate, lauryl lactate, myristyl lactate, and cetyl lactate; 5. alkenyl esters of fatty acids having 10 to 20 carbon atoms, such as oleyl myristate, oleyl stearate, and oleyl oleate and the like; 6. fatty acids having 10 to 20 carbon atoms, such as behiargonic, lauric, myristic, palmitic, stearic, isostearic, hydroxystearic, oleic, linoleic, ricinoleic, arachidic, behenic, and erucic acids and the like; 7. fatty alcohols having 10 to 20 carbon atoms, such as, lauryl, myristyl, cetyl, hexadecyl, stearyl, isostearyl, hydroxystearyl, oleyl, ricinoleyl, behenyl, erucyl, and 2-octyl dodecanyl alcohols are examples of satisfactory fatty alcohols and the like, 8. fatty alcohol ethers, such as ethoxylated fatty alcohols of 10 to 20 carbon atoms including the lauryl, cetyl, stearyl, isostearyl, oleyl, and cholesterol alcohols, having attached thereto from 1 to 50 ethylene oxide groups or 1 to 50 propylene oxide groups; 9. ether-esters such as fatty acid esters of ethoxylated fatty alcohols; 10. Lanolin and derivatives, such as lanolin, lanolin oil, lanolin wax, lanolin alcohols, lanolin fatty acids, isopropyl lanolate, ethoxylated lanolin, ethoxylated lanolin alcohols, ethoxylated cholesterol, propoxylated lanolin alcohols, acetylated lanolin alcohols, lanolin alcohols linoleate, lanolin alcohols ricinoleate, acetate of lanolin alcohols ricinoleate, acetate of ethoxylated alcohols-esters, hydrogenolysis of lanolin, ethoxylated hydrogenated lanolin, ethoxylated sorbitol lanolin, and liquid and semisolid lanolin absorption bases and the like; 11. polyhydric alcohol esters, such as, ethylene glycol mono and di-fatty acid esters, 20 diethylene glycol mono-and di-fatty acid esters, polyethylene glycol (200-6000) mono- and di-fatty acid esters, propylene glycol mono- and di-fatty acid esters, polypropylene glycol 2000 monooleate, polypropylene glycol 2000 monostearate, ethoxylated propylene glycol monostearate, glyceryl mono- and di-fatty acid esters, polyglycerol polyfatty esters, ethoxylated glyceryl monostearate, 1,2-butylene glycol monostearate, 25 1,2-butylene glycol distearate, polyoxyethylene polyol fatty acid ester, sorbitan fatty acid esters, and polyoxyethylene sorbitan fatty acid esters are satisfactory polyhydric alcohol esters; 12. wax esters such as beeswax, spermaceti, myristyl myristate, stearyl stearate; 13. beeswax derivatives, e.g. polyoxyethylene sorbitol beeswax; 14. vegetable waxes including carnauba and candelilla waxes; 15. phospholipids such as 30 lecithin and derivatives; 16. sterol including cholesterol and cholesterol fatty acid

esters; 17. amides such as fatty acid amides, ethoxylated fatty acid amides, solid fatty acid alkanolamides.

Humectants may be added to the composition to increase the effectiveness of the emollient, to reduce scaling, to stimulate removal of built-up scale and improve skin feel. By way of example only, suitable humectants include polyhydric alcohols, such as glycerol, polyalkylene glycols, alkylene polyols their derivatives, propylene glycol, dipropylene glycol, polypropylene glycol, polyethylene glycol, sorbitol, hydroxypropyl sorbitol, hexylene glycol, 1,3-butylene glycol, 1,2,6-hexanetriol, ethoxylated glycerol, propoxylated glycerol and the like. The amount of humectant may be in the range of about 0.5-30 wt% and preferably between 1-15 wt%.

In topical skin care applications, a variety of active substances may be advantageously employed. By way of example only suitable active agents which may be incorporated into the cosmetic composition include anti-aging active substances, anti-wrinkle active substances, hydrating or moisturizing or slimming active substances, depigmenting active substances, substances active against free radicals, anti-irritation active substances, sun protective active substances, anti-acne active substances, firming-up active substances, exfoliating active substances, emollient active substances, and active substances for the treating of skin disorders such as dermatitis and the like.

By way of example only, in the case of hydration, one or more moisturizers may be used, such as glycerin or urea, in combination with one or more precursor agents for the biosynthesis of structural proteins, such as hydroxyproline, collagen peptides and the like.

By the way of example only, in case of slimming, at least one ketolytic agent or an alpha-hydroxyacid such as salicylic acid or 5-n-octanoic salicylic acid may be used in combination with at least one liporegulating agent such as caffeine.

By way of example only, in the case of depigmentation, at least one keratolytic agent is used in combination with a depigmenting agent such as hydroquinone, tyrosinase inhibitor (kasic acid), ascorbic acid, kojic acid and sodium metabisulfite and the like.

By way of example only, in the case of protection against free radical agents, vitamin E (against COO^- radicals), superoxide dismutase (against O_2^- free radicals) and sugar and caffeine (against OH^- free radicals).

5 By way of example only, in the case of anti-aging, moisturizers, sunscreens, alpha-hydroxyacids, salicylic acid or surface restructuring agents may be used in combination with enzymes for the repair of DNA, vascular protective agents or phospholipids rich in oligoelements and polyunsaturated fatty acids.

10 By way of example only, in the case of anti-acne agents, keratolytics, such as salicylic acid, sulfur, lactic acid, glycolic, pyruvic acid, urea, resorcinol and N-acetylcysteine, and retinoids, such as retinoic acid and its derivatives may be used.

15 By way of example only, in the case of anti-inflammation, non-steroidal anti-inflammatory agents (NSAIDS) may be used, such as propionic acid derivatives, acetic acid, fenamic acid derivatives, biphenylcarboxylic acid derivatives, oxicams, including but not limited to aspirin, acetaminophen, ibuprofen, naproxen, benoxaprofen, flurbiprofen, fenbufen, ketoprofen, indoprofen, pirprofen, carprofen, and bucloxic acid and the like.

20 By way of example only, in the case of antibiotics and antimicrobials may be included in the composition of the invention. Antimicrobial drugs preferred for inclusion in compositions of the present invention include salts of β -lactam drugs, quinolone drugs, ciprofloxacin, norfloxacin, tetracycline, erythromycin, amikacin, triclosan, doxycycline, capreomycin, chlorhexidine, chlortetracycline, oxytetracycline, clindamycin, ethambutol, hexamidine isethionate, metronidazole, pentamidine, gentamicin, kanamycin, lineomycin, methacycline, methenamine, minocycline, neomycin, netilmicin, paromomycin, streptomycin, tobramycin, miconazole and amanfadine and the like.

25 By way of example only, in the case of sunscreen protection, suitable agents include 2-ethylhexyl p-methoxycinnamate, 2-ethylhexyl N,N-dimethyl-p-aminobenzoate, p-aminobenzoic acid, 2-phenyl p-methoxycinnamate, 2-ethylhexyl octocrylene, oxybenzone, homomenthyl salicylate, octyl salicylate, 4,4'-methoxy-t-butylidibenzoylmethen, 4-isopropyl dibenzoylmethane, 3-benzylidene camphor, 3-(4-

methylbenzylidene) camphor, titanium dioxide, zinc oxide, silica, iron oxide, and mixtures thereof and the like. The sunscreening agents disclosed therein have, in a single molecule, two distinct chromophore moieties which exhibit different ultra-violet radiation absorption spectra. One of the chromophore moieties absorbs predominantly in the UVB radiation range and the other absorbs strongly in the UVA radiation range. These sunscreening agents provide higher efficacy, broader UV absorption, lower skin penetration and longer lasting efficacy relative to conventional sunscreens. Generally, the sunscreens can comprise from about 0.5% to about 20% of the compositions useful herein. Exact amounts will vary depending upon the sunscreen chosen and the desired Sun Protection Factor (SPF). SPF is a commonly used measure of photoprotection of a sunscreen against erythema.

By way of example only, in the case of sunless tanning agents include dihydroxyacetone, glyceraldehyde, indoles and their derivatives, and the like.

The composition may include cleansing surfactants. Cleansing surfactants are cationic, anionic, amphoteric or non-ionic surfactants which are water-soluble and produce a consumer-acceptable amount of foam. Nonionic surfactants are well-known materials and have been used in cleansing compositions. Therefore, suitable nonionic surfactants include, but are not limited to, compounds in the classes known as alkanolamides, block copolymers of ethylene and propylene, ethoxylated alcohols, ethoxylated alkylphenols, alkyl polyglycosides and mixtures thereof. In particular, the nonionic surfactant can be an ethoxylated alkylphenol, i.e., a condensation product of an alkylphenol having an alkyl group containing from about 6 to about 12 carbon atoms in either a straight chain or branched chain configuration with ethylene oxide, the ethylene oxide being present in an amount equal to at least about 8 moles ethylene oxide per mole of alkylphenol. Examples of compounds of this type include nonylphenol condensed with about 9.5 moles of ethylene oxide per mole of phenol; dodecylphenol condensed with about 12 moles of ethylene oxide per mole of phenol; dinonylphenol condensed with about 15 moles of ethylene oxide per mole of phenol; octylphenol condensed with about ten moles of ethylene oxide per mole of phenol; and diisooctyl phenol condensed with about 15 moles of ethylene oxide per mole of

phenol.

A wide variety of acids, bases, buffers, and sequestrants can be utilized to adjust and/or maintain the pH and ionic strength of the compositions useful in the instant invention. Materials useful for adjusting and/or maintaining the pH and/or the 5 ionic strength include sodium carbonate, sodium hydroxide, hydrochloric acid, phosphoric acid, sulfuric acid, acetic acid, sodium acetate, sodium hydrogen phosphate, sodium dihydrogen phosphate, citric acid, sodium citrate, sodium bicarbonate, triethanolamine, EDTA, disodium EDTA, tetrasodium EDTA, and the like.

The polymer network may be useful as a solubilization agent in cosmetic and 10 personal care applications. A self-assembling system comprising the reversibly gelling polymer network exhibits thermogelation, pH sensitivity, and the ability to solubilize hydrophobic agents in aqueous media. When polyoxamer is copolymerized with poly(acrylic acid) (PAA) according to the invention, the resulting copolymer network is bioadhesive and can be applied in a number of therapies. The materials described in 15 this invention combine "reverse" thermoviscosification mucoadhesion, solubilization of hydrophobic and difficult to manage moieties, easy formulation, and protection of agents from degradation to provide a superior medium for cosmetic and personal care products.

The reversible viscosification of the polymer network at elevated temperatures 20 makes the materials ideal for use as thickening agents in cosmetic and personal care products at any temperature above the transition. Another use of the "thickening" of solutions containing the polymer network as a thickener supplement in emulsions. Currently emulsifiers are often negatively effected by increased temperatures. An additive with reverse thermal viscosification properties, however, would react in 25 exactly the opposite way, increasing its ability to emulsify as it gained three-dimensional structure upon heating above its transition temperature.

In the applications where the reversibly gelling polymer composition can act as a surfactant, the polymer network will have the ability to act as a primary emulsifier without any (or with very little) addition of traditional surfactant. The responsive 30 polymer network will also act as a stabilizer for oil-soluble ingredients that would

conventionally need to be solubilized by oils in formulation. The hydrophobic portion of the polymer network (PPO) forms domains which act as reservoirs for an oil-soluble or hydrophobic additive, such as an oil droplet, as is illustrated in Figure 9. These two features of the material of the invention would enable it to be used as a 5 base in a cosmetic formulation that would be non-greasy due to lack of oils, such as petrolatum and mineral oil. The increase in viscosity above the transition temperature adds structure and yield value to the water phase and results in a highly stable emulsion.

Thus, poloxamer:poly(acrylic acid) polymer network compositions are valuable 10 materials in the formulation of cosmetic and personal care products. In particular, they may be useful as rheology modifiers, provide a cushioning effect on the skin, offer barrier properties and controlled release of actives. In addition, the polymer composition may serve as a surfactant and is compatible with most ingredients used in the cosmetic industry.

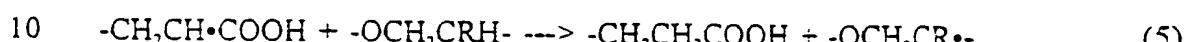
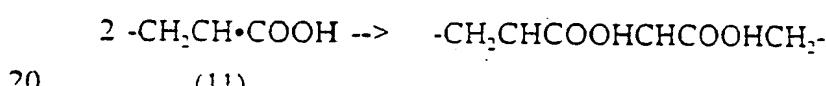
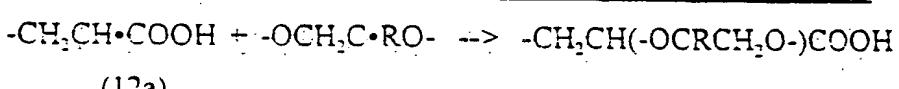
15 The above properties of the poloxamer:poly(acrylic acid) polymer network provides a cosmetic composition that spreads evenly and smoothly and which leaves a lubricious feel to the skin. A sensory evaluation was conducted with seven random volunteers in order to determine the sensory effect of a cream formulation on the skin. An oil-free cosmetic formulation was prepared substantially as set forth in Example 20 33(b) and was compared to Nivea Oil Free, a product of Beiersdorf of Germany. Volunteers placed unmarked samples on the skin and evaluated the formulation based upon its feel and texture. The samples were rated on a scale of 1 (bad) to 5 (good). The oil-free cosmetic formulation of the present invention scored equally to the Nivea Oil Free moisturizing product. Both samples scored a 3.5 on the rating scale.

25 The observed thermal behavior of the reversibly gelling polymer network suggests that the increase in viscosity is due to aggregation of the hydrophobic portion of the poloxamer at the transition temperature which, because of bonding with the poly(acrylic acid) component, serve as temporary cross-links which physically bridge adjacent chains of poly(acrylic acid) to provide a viscous gel-like extended polymer 30 structure. The aggregation process may be understood as occurring as shown in Figure

10, in which a backbone 20 represent poly(acrylic acid), a thin band 24 represents the hydrophobic poly(propylene) glycol region of the poloxamer and a thick band 26 represents the hydrophilic poly(ethylene glycol) region of the poloxamer. Below the transition temperature, the polymer network is randomly arranged, as is shown in 5 Figure 10(a). At or above the transition temperature, the hydrophobic regions 24 associate to form aggregations or micelles 28, as is shown in Figure 10(b). The association increases the effective molecular weight of the polymer network composition with the corresponding increase in viscosity.

A general method of making the poloxamer:PAA polymer network 10 compositions of the present invention comprises solubilization of the poloxamer in acrylic acid monomer, followed by polymerization of the monomer to PAA. Polymerization may be accomplished by addition of a polymerization initiator or by 15 irradiation techniques. The initiator may be a free radical initiator, such as chemical free radical initiators and uv or gamma radiation initiators. Conventional free radical initiators may be used according to the invention, including, but in no way limited to ammonium persulfate, benzoin ethyl ether, benzyl peroxide, 1,2'-azobis(2,4-dimethylpentanitrile) (Vazo 52) and azobisisobutyronitrile (AIBN). Initiation may also be accomplished using cationic or ionic initiators. Many variations of this methods 20 will be apparent to one skilled in the art and are contemplated as within the scope of the invention. For example, the poloxamer component may be dissolved in an acrylic acid/water mixture instead of pure monomer. It may be desirable to remove unreacted monomer and/or free poloxamer from the resultant polymer network. This may be accomplished using conventional techniques, such as, by way of example, dialysis or sohxlet extraction.

25 Without intending to be bound by a particular mechanism or structure, the following scheme represents a possible chemical mechanism for the formation of the system here described. These mechanisms are presented by way of explanation and are no way limiting of the invention. It is contemplated that these or other mechanistic routes may in fact occur in the formation of the polymer network of the 30 present invention.

I. InitiationII. Hydrogen AbstractionIII. Chain TransferIV. PropagationV. Side Chain Branching Off AA BackboneVI. AA Branching off Poloxamer BackboneVII. Homogenous TerminationVIII. Heterogenous Termination with bonding of Pluronic to PAA

The scheme for bonding of poloxamer to acrylic acid may involve initiation (eq 1), hydrogen abstraction from the propylene or ethylene moiety of the poloxamer (eq 3), and attachment to acrylic acid via addition across the unsaturated bond (eq 10). Propagation (eq 8) leads to the final PAA.

Alternatively, the mechanism may proceed by initiation according to eqs. (1) and (2), propagation to form PAA (eq. 8), a chain transfer reaction to generate a reactive poloxamer moiety (eq. 5), followed by addition of the reactive poloxamer

moiety to the unsaturated bond of acrylic acid (eq. 10) and subsequent propagation of the PAA chain.

Thus the polymer network may include a plurality of poly(acrylic acid) units bonded to a single poloxamer unit or, alternatively, a plurality of poloxamer units 5 bound to a single PAA backbone. Combinations of these alternatives are also a possibility.

Reverse phase polymerization may be used to prepare polymer network beads by dispersion of the poloxamer and acrylic acid monomer mixture in a nonpolar solvent such as hexane or heptane. The aggregating polymer/monomer solution is 10 dispersed with agitation in the nonpolar solvent in order to suspend droplets of the solution. Polymerization of the monomer is initiated by conventional means (i.e.. addition of a initiator or irradiation) in order to polymerize the monomer and form responsive polymer network beads. See, U.S.S.N. 08/276.532 filed July 18, 1995 and entitled "Useful Responsive Polymer Gel Beads" for further information on the 15 preparation of polymer gel beads. herein incorporated by reference. Such a method may be particularly desirable to provide a heat sink for the heat generated in the exothermic polymerization reaction.

The polymer network complexes and aqueous gelling solutions of the present invention may be understood with reference to the following examples, which are 20 provided for the purposes of illustration and which are in no way limiting of the invention.

Example 1 This example describes the synthesis of a polymer network and an aqueous responsive polymer network solution prepared using a triblock polymer of 25 poly(ethylene glycol) and poly(propylene glycol), Pluronic® F27 polyol, and poly(acrylic acid). This example also characterizes the gelation and the physical properties of the resultant polymer network.

Synthesis. Block copolymer of poly(propylene glycol) (PPG) and poly(ethylene glycol) (PEG) having triad ABA structure $(PEG)_A(PPG)_B(PEG)_A$ (Pluronic® F127 NF polyol, Poloxamer 407 NF polyol, where "F" means Flakes, "12" 30 means $12 \times 300 = 3600$ - MW of the PPG section of the block copolymer, "7" PEG in

the copolymer is 70 wt%, and nominal molecular weight is 12,600) from BASF (3.0 g) was dissolved in 3.0 g acrylic acid (Aldrich). This represents a substantially 1:1 weight ratio of Pluronic® F127 polyol and poly(acrylic acid). The solution was deaerated by N₂ bubbling for 0.5 h and following addition of 100 ml of freshly prepared saturated solution of ammonium persulfate (Kodak) in deionized water was kept at 70 °C for 16 h resulting in a transparent polymer.

Viscosity measurements. A known amount of the resultant polymer was suspended in 100 ml deionized water into which NaOH was added. Following swelling for 3 days while stirring, the pH of the resulting fine suspension was adjusted to 7. Samples of 15 ml each were taken, and pH in each vial was adjusted to desired value by addition of 1 M HCl or NaOH. Samples were then kept overnight and their viscosities were measured at different temperatures using Brookfield viscometer using either an SC4-18 or an SC4-25 spindle.

A control experiment was done with a physical blend of Pluronic® F127 polyol and poly(acrylic acid) (MW 450,000) available from Aldrich. Pluronic® F127 polyol and poly(acrylic acid) were dissolved together in deionized water at 1 wt% total polymer concentration and the resultant solution was adjusted to pH 7, stirred and kept in refrigerator. The responsiveness of the polymer network composition and the physical blend to temperature and pH is illustrated in Figs. 1, 11 and 12. Figs. 1 and 2 clearly demonstrate that the synthetic route outlined above resulted in a polymer network system that is sensitive to pH and temperature of the environment. Note that the liquid-gel transition is very sharp, occurring over a very small temperature change or pH (see, Figure 11). Figure 12 is a viscosity vs. temperature graph comparing the gelling characteristics of the responsive polymer network composition and the physical blend. The blend prepared by physically mixing of the triblock PEG/PPG/PEG polymer and poly(acrylic acid) did not exhibit viscosifying effect either as a function of temperature or pH.

It was generally observed that 0.5-5 wt% polymer network compositions made of Pluronic® F127 polyol and poly(acrylic acid) viscosify at temperatures of around 30 °C and higher if pH is adjusted to 6 or higher. The gelling effect was observed in

polymer network compositions standing 3 months or longer. Repeated heating and cooling of responsive polymer network compositions did not cause deterioration of the polymer network or the gelling effect. Solutions of either Pluronic® F127 polyol or poly(acrylic acid) (1-5 w% in water, adjusted to pH 6 or higher) or physical blends of 5 the two lacked the reverse thermal gelling effects found for polymer network compositions.

Example 2. This example describes a standard operating procedure for the manufacture of the reversible gelling polymer network.

The procedure is based upon a 50 liter production. A NaOH solution was 10 prepared by dissolving 131.8 g NaOH pellets in 131.8 mL DI water (50% solution). The NaOH was allowed to dissolve completely. The NaOH solution will be used to convert a percentage of the acrylic acid to sodium acrylate in situ. Acrylic acid monomer (4 kg) is charged into a monomer feed tank and agitated at 250 rpm. NaOH is added slowly. The precipitate formed as the acrylic acid is neutralized to 15 sodium acrylate is allowed to dissolve. Pluronic® F127 (3.5 kg) is slowly added to the monomer feed tank. Pluronic® F127 is dissolved under continued agitation. Norpar 12 (a refined C-12 alkane) is added to the reaction vessel (37 L). The mixture is agitated at 100 rpm. Stabilizer solution of Ganex V-126 is prepared in 2L Norpar 12 and added to the reactor under agitation.

20 A reaction vessel was degassed using a nitrogen sparge introduced from the bottom of reactor and was continued throughout the reaction. Initiator (13.63 g Lauryl peroxide and 4.23 g Vazo 52 in 0.7 kg acrylic acid monomer) is introduced into the monomer solution. The monomer solution was transferred to the reaction vessel. Agitation was increased to 150 rpm. Nitrogen sparging continued for an additional 20 25 minutes and then heating began. Heating began at a rate of 0.5-1.0 °C/min up to 75 °C. The reaction began to exotherm at about 45-50 °C and is allowed to continue without cooling until a maximum is reached. It is then cooled to 75 °C using forced cooling. The reaction continued for 12 hours and was then cooled to 35 °C. The slurry was transferred into pails and the polymer beads were allowed to settle.

30 The slurry was filtered through Buchner Funnels with filter paper (11 µm pore

size) until the bulk of the Norpar had been removed from the beads. The beads were washed three times with heptane. The filtered beads were transferred to a Pyrex drying tray and spread on the tray in a uniform layer. The beads were dried under vacuum for 4 hours at 40-50 °C. The dried beads were analyzed as follows.

5 Elemental analysis. The elemental analysis was performed by Quantitative Technologies, Inc., Whitehouse, NJ using a Perkin Elmer 2400 CHN Elemental Analyzer. Analysis provided C (52.49%), H (7.50%), N (< 0.05%), the balance assumed to be oxygen (39.96%).

10 Thermal Gravimetric Analysis (TGA). The TGA method was performed by Massachusetts Material Research, Inc., West Boylston, MA using a Dupont TGA model 295. The assay was run using a temperature ramp from 30 to 500 °C/min. The resolution for the system was set to 4 (1.0 °C/min for all slope changes). The data was analyzed using the first derivative of the curve and using maxima and minima to mark transitions. The moisture content was also calculated in this manner. The first 15 derivative yielded three maxima. The first transition (moisture) was 3.0% by weight, the second transition was 14.0% by weight and the third was 67.02% by weight. Residue (15.98% remained).

15 Molecular weight determination by gel permeation chromatography (GPC). The molecular weight was determined by GPC on a Hewlett Packard 1100 Liquid Chromatography system with a Viscotech T60 Triple Detector system. Three Waters Ultrahydrogel columns, 1000, 500 and 250 Å, were used for the separation. The 20 mobile phase was 0.1M NaNO₃ and 0.01M K₂HPO₄ salt solution, pH adjusted with phosphoric acid to a pH of 8.0 ± 0.1. The flow rate for the separation was 0.9 mL/min. The column temperature was maintained at 15 °C. The injection volume for 25 the assay was 50 µL. A PEG molecular weight standard of 33,000 Daltons was used to align the detectors. The result for the assay were:

M_n : 341,700 Daltons

M_p : 1,607,000 Daltons

M_w : 2,996,000 Daltons

30 Free poloxamer determination by GPC. The amount of free (unbound)

poloxamer in the polymer matrix was determined using the above GPC method and comparing the poloxamer peaks to that of a standard poloxamer solution. The typical result is approximately 18-22% free poloxamer by weight.

The effect of both the bonded and non-bonded poloxamer on the gelation properties of the responsive polymer network has been determined by extraction of the non-bonded poloxamer from the material. Such extraction studies have established that the graft co-polymer alone exhibits the characteristic reverse thermal gelation of the composition; however, the presence of non-bonded poloxamer component modulates the gelation process. The non-bonded poloxamer component can affect the temperature of transition (from liquid to gel) and the degree of transition and assists in a more controlled and reproducible transition.

Bound poloxamer determination by ethylene oxide (EO) titration. The EO titration was performed as follows. A 5 gm sample of the product polymer was extracted in dichloroethane for three hours at reflux temperatures. The solid is removed and dried under a vacuum for 12 hours at room temperature. The dry material is then analyzed using ASTM method D 2959-95, "Standard Test Method for Ethylene Oxide Content". The amount of EO in the sample is related to the amount of poloxamer bound to the polymer. The typical result is approximately 15 % by weight of EO.

The relative amount of free poloxamer may be varied dependent upon the relative proportions of starting materials and the method of polymerization. Although the residual solids presumably contain only poloxamer which is bonded to the poly(acrylic acid), i.e., a graft co-polymer, the material still shows strong viscosification when it is neutralized and dissolved in water. However, the temperature of viscosification is increased substantially and the degree of viscosification per gram of total solids is increased by removal of free poloxamer. Thus, the free poloxamer plays a role in modifying the extent and temperature of viscosification. The poloxamer undergoes conformational changes and changes to the critical micelle concentration as a function of temperature. The poloxamer will change from an open, non-aggregated form to a micellar, aggregated form with

changes in temperature.

5 Residual acrylic monomer determination by gas chromatography (GC). The residual acrylic acid monomer was determined by GC analysis using a Hewlet Packard GC 5890A, using a HP-FFDAP-TPA 10 m x 0.53 mm x 1 μ m column. The sample was extracted and run in methanol. Using an internal standard ratio, the sample was compared to a one point calibration. The typical results for this assay were below 70 ppm acrylic acid monomer.

10 Residual Norpar solvent by GC. The residual Norpar in the sample was determined by GC using the above method and comparing the Norpar peaks to that of a standard. The typical results were below 1.5 wt%.

UV-vis spectrum. Optical clarity data of UV-vis spectrophotometer was obtained. A 1.0% solution in water was prepared and measured at 420 nm. Transmittance (%) was typically greater than 90%.

15 Differential scanning calorimetry (DSC). The DSC was performed by Massachusetts Material Research, Inc., West Boylston, MA using a temperature ramp from 30 to 350 °C at 5 °C/min. The resolution for the system was set to 4 (1.0 °C/min for all slope changes). The assay yielded one endothermic event at 265 °C, typically 270 J/g.

20 Examples 3-9. This example describes the synthesis of a several reversible thermal gelling polymer network prepared using a variety of poloxamers and poly(acrylic acid). The gelation and the physical properties of the resultant polymer network compositions are reported in Table 2.

Table 2.

example	poloxamer	poloxamer composition	poloxamer: PAA	trans. temp.	comments
5	3 Pluronic® F88 Prill polyol	2400 MW PPG; 80 wt% PEG; nominal MW 11,400	1:1	48 °C	viscosity response curve shown in Figure 13
	4 Pluronic® F127 NF polyol	3600 MW PPG; 70 wt% PEG; nominal MW 12,600	1:1	30 °C	pentaerythritol triallyl ether crosslink agent used
	5 Pluronic® P104 polyol	3000 MW PPG; 40 wt% PEG; nominal MW 5,900	1:1	28 °C	viscosity response curve shown in Figure 14
	6 Pluronic® P123 polyol	3600 MW PPG; 30 wt% PEG; nominal MW 5,750	1:1	25 °C	viscosity response curve shown in Figure 15
	7 Pluronic® F127/Pluronic® F108 polyol blend (1:1)	as above	1:1.7	42 °C	polymer solid formed, dried; resolubilized in neutralizing solution
	8 Pluronic® F88 polyol	as above	1:1.7	80 °C	polymer solid formed, dried; resolubilized in neutralizing solution
10	9 Pluronic® F127/Pluronic® F88 polyol blend (1:1)	as above	1:1.7	85 °C	polymer solid formed, dried; resolubilized in neutralizing solution

Example 10. The following example demonstrates the effect of hydrophilic/hydrophobic ratio on the gelling temperature. Polymer network compositions were prepared from the following poloxamers shown in Table 3.

Table 3. Composition of poloxamers investigated.

triblock polyol polymer composition	MW of PPG block	wt% of PEG block
P103 (PEG) ₃₇ (PPG) ₅₆ (PEG) ₃₇	3250	50
P104 (PEG) ₂₅ (PPG) ₅₆ (PEG) ₂₅	3250	40
P105 (PEG) ₁₆ (PPG) ₅₆ (PEG) ₁₆	3250	30

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Table 3 shows that in this series, the fraction of PEG is reduced when the molecular weight of the PPG block is kept constant. Linse (*Macromol.* **26**:4437-4449 (1993)) report phase diagrams for these copolymers in water were calculated and it was shown that two-phase boundaries corresponding to the beginning of aggregation are almost unaffected by the molecular mass, given a constant PEG/PPG ratio, whereas these boundaries shifted to lower temperature as the PEG content of the polymer is reduced at constant mass. The strong dependence of the PEG/PPG ratio is a consequence of the differing solubilities of PEG and PPG in water at the elevated temperatures. Thus one would suppose that aggregation that causes viscosification in the responsive polymer network composition should shift to lower temperature as PEG fraction decreases.

The poloxamer (3.0 g) was dissolved in 3.0 g acrylic acid. The solution was deaerated by N₂ bubbling for 20 min. and following addition of the 100 : 1 of freshly prepared saturated solution of ammonium persulfate in deionized water was kept at 70°C for 16 h resulting in a strong whitish polymer. A sample of the polymer obtained (0.4 g) was suspended in 40 ml deionized water into which NaOH was added. Suspended responsive polymer network particles were allowed to dissolve under constant stirring. The resulting 1 wt% polymer network solutions were subjected to the viscosity measurement at shear rate of 132 or 13.2 sec⁻¹ using a SC4-18 spindle. It can be seen from Figure 16 that, firstly, viscosity of the 1 wt%

responsive polymer network solutions before viscosification (at 20-24°C) decreases in the series (PEG)₃₇(PPG)₅₆(PEG)₃₇(F103) > (PEG)₂₅(PPG)₅₆(PEG)₂₅(F104) > (PEG)₁₆(PPG)₅₆(PEG)₁₆(F105) and, secondly, the temperature at which gelation shifts from about 45°C for (PEG)₃₇(PPG)₅₆(PEG)₃₇ to about 35°C for (PEG)₂₅(PPG)₅₆(PEG)₂₅ and (PEG)₁₆(PPG)₅₆(PEG)₁₆. Both results are in excellent agreement with the theory set forth in Linse.

10 Example 11. The following example is related to release of an active agent from a poloxamer:poly(acrylic acid) polymer network. Drug loading and kinetics of release of the protein hemoglobin from poloxamer:poly(acrylic acid) polymer network is described.

15 Synthesis. Pluronic® F127 (3.0 g) was dissolved in 3.0 g acrylic acid. The solution was deaerated by N₂ bubbling for 0.5 h and following addition of 100 F1 of freshly prepared saturated solution of ammonium persulfate (Kodak) in deionized water was kept at 70°C for 16 h resulting in a transparent polymer. The resultant responsive polymer network obtained (5 g) was suspended in 95 ml deionized water into which NaOH was added. The resulting suspension was allowed to swell for 7 days.

20 Hemoglobin loading and release. A 5 wt% responsive polymer network composition (3 g) was allowed to swell for 16 h in 10 ml of 0.25 mg/ml solution of human hemoglobin (Sigma) in deionized water adjusted to pH 8. The resulting mixture was well shaken and placed into the feed chambers of customized vertical, static, Franz-like diffusion cells made of Teflon. The feed and receiver chambers of the diffusion cells were separated by mesh screens (# 2063). The receiver chamber was continuously stirred by a magnetic bar. The cells were allowed to equilibrate to either 25 or 37°C (in an oven). The feed and receiver phases consisted of 1 g of the hemoglobin-loaded responsive polymer network and 6 ml of phosphate-buffered saline (pH 7.4), respectively. In the control experiment, the feed phase was made of 1 g of 0.25 mg/ml hemoglobin solution. After the feed solution had been loaded into the cell, the kinetic time commenced. Samples of the receiver phase was withdrawn from time to time and their absorbance was measured spectrophotometrically at 400 nm.

To calculate hemoglobin concentrations, corresponding calibration curves (absorbance in PBS versus hemoglobin concentration) were generated. The results of the kinetic experiment are presented in Figure 17. It can be seen that the rate of hemoglobin release from the polymer network was substantially lowered at 37°C when compared to that at 25°C, because of viscosity increase in the polymer network at elevated temperatures (see Figure 1). The protein released from the polymer network composition still retained its native structure, as was determined by comparison of uv-vis spectra of release hemoglobin and natural hemoglobin.

Example 12. The following example is related to release of an active agent from a poloxamer:poly(acrylic acid) polymer network. Drug loading and kinetics of release of the protein lysozyme from a polymer network is reported.

Lysozyme loading and release. A 5 wt% responsive polymer network composition (3 g) was allowed to swell for 16 h in 10 ml of 1 mg/ml solution of chicken egg-white lysozyme (Sigma) and 1.5 mg/ml sodium dodecyl sulfate (Aldrich) in deionized water adjusted to pH 8.5. The resulting mixture was well shaken and placed into the feed chambers of customized vertical, static, Franz-like diffusion cells made of Teflon. The feed and receiver chambers of the diffusion cells were separated by mesh screens (# 2063). The receiver chamber was continuously stirred by a magnetic bar. The cells were allowed to equilibrate to either 25 or 37°C (in an oven). The feed and receiver phases consisted of 1 g of the lysozyme-loaded responsive polymer network and 6 ml of phosphate-buffered saline (pH 7.4), respectively. In the control experiment, the feed phase was made of 1 g of 1 mg/ml lysozyme solution. After the feed solution had been loaded into the cell, the kinetic time commenced. Samples were withdrawn and their absorbance measured spectrophotometrically at 280 nm. A calibration curve was prepared for lysozyme concentration ranging from 0 mg/ml to 0.5 mg/ml in phosphate buffered saline. The results of the kinetic experiment are presented in Figure 18. It can be seen that the rate of lysozyme release from the responsive polymer network composition was substantially lowered at 37°C when compared to that at 25°C, because of viscosity increase in responsive polymer network at elevated temperatures (see Figure 1).

In order to demonstrate the retention of the enzymatic activity of lysozyme, the lysozyme released from the responsive polymer network composition was assayed using *Micrococcus lysodeikticus* cells and compared to that of original lysozyme. The enzymatic activity of lysozyme was the same, within the error of the assay (15%), as 5 that of the original lysozyme. Control without lysozyme in presence of sodium dodecyl sulfate did not show any appreciable lysis of the cells.

Example 13. The following example is related to release of an active agent from a poloxamer:poly(acrylic acid) polymer network. Drug loading and kinetics of release of insulin from a responsive polymer network composition is reported.

10 Insulin loading and release. A 5 wt% responsive polymer network composition (3 g) was allowed to swell for 16 h in 10 ml of 5 mg/ml solution of bovine Zn^{2+} -insulin (Sigma) in deionized water adjusted to pH 7. The resulting mixture was well shaken and placed into the feed chambers of customized vertical, static, Franz-like diffusion cells made of Teflon. The feed and receiver chambers of 15 the diffusion cells were separated by mesh screens (# 2063). The receiver chamber was continuously stirred by a magnetic bar. The cells were allowed to equilibrate to either 25 or 37°C (in an oven). The feed and receiver phases consisted of 1 g of the insulin-loaded responsive polymer network and 6 ml of phosphate-buffered saline (pH 7.4), respectively. In the control experiment, the feed phase was made of 1 g of 5 20 mg/ml insulin solution. After the feed solution had been loaded into the cell, the timing commenced. Samples were withdrawn and their absorbance was measured spectrophotometrically at 280 nm. A calibration curve was prepared for insulin concentration ranging from 0 mg/ml to 1.25 mg/ml in phosphate buffered saline. The results of the kinetic experiment are presented in Figure 19. The rate of insulin 25 release from responsive polymer network was substantially lowered at 37°C when compared to that at 25°C, because of viscosity increase in responsive polymer network at elevated temperatures (see Figure 1).

30 Example 14. This example demonstrates the preparation of a sterile reversibly gelling polymer network aqueous composition and the stability of the composition to sterilization. The polymer network is prepared as described in Example 1, except that

the composition is prepared at 2 wt% Pluronic® F127 polyol/poly(acrylic acid). After dissolution of the 2 wt% polymer network in water, the viscosity is measured. The composition then is sterilized by autoclaving at 121 °C, 16 psi for 30 minutes.

5 Viscosity is determined after sterilization. The corresponding curves for viscosity (a) before and (b) after sterilization are shown in Figure 20 and establish that minimal change in the viscosity profile of the material has occurred with sterilization.

Examples 15-30. These examples show additives which may be used to affect the transition temperature overall viscosification of the polymer network composition.

10 A 1 wt% polymer network was prepared in deionized water at pH 7 in which a variety of additives were included in the composition. The effect of the additive was determined by generation of a Brookfield viscosification curve. Results are reported in Table 4.

Table 4.

Example No.	Additive (wt%)	Effect of additive on:	
		transition temp. (°C)	final viscosity (% change)
5	15 1,2-methyl pyrrolidone (5)	I (1.8)	N
	16 Rhodapex CO-436 (2)	I (1.6)	N
	17 Dow Corning 190 (2)	I (5)	I (150)
	18 isopropyl alcohol (0.5)	I (3.1)	I (45)
	19 Pluronic® L122 (1)	D (4.4)	D (13)
10	20 Pluronic® F88 (1)	N	I (41)
	21 Tween 80 (0.5)	N	I (18)
	22 Germaben® II (1)	D (9)	I (100)
	23 Iconol NP-6 (1)	D (9)	I (500)
	24 Plurafac C-17 (0.5)	I (5.2)	D (36)
15	25 Dow Corning 193 (0.75)	I (4.1)	D (12)
	26 glycerin (5)	D (2)	N
	27 UC 50-HB- 170/EO/PO random copolymer (0.5)	N	N
	28 PVP K15 (1)	N	N
	29 MAPTAC (1)	N	D (8)
20	30 potassium chloride (0.25)	N	D (34)

I = increase; D = decrease; and N = no change

Example 31. Because of the surfactant nature of the polymer network composition coupled with the gelation effect of the polymer network composition, it is possible to prepare formulation which are 100% water-based, but which are lubricous and thick.

5 Formulations including a nonionic surfactant formulation: An O/W (oil-in-water) emulsion was made by combining the following ingredients utilizing conventional mixing techniques:

Table 5.

Ingredient	% w/w
10 % wt. 1:1 responsive polymer network as prepared in Example 1	20.0
Emulsifying Wax NF ¹	2.5
Mineral Oil	5.0

15 ¹ Polowax available from Croda

Into a vessel equipped with a high efficiency homogenizer, the formula amount of all ingredients is added, water is added to 100% w/w and allowed to mix to homogeneity. This formulation contains a nonionic surfactant and gives an emulsion that is fluid at room temperature but viscosifies above 32°C.

20 Formulations including a cationic surfactant formulation: An O/W (oil-in-water) emulsion was made by combining the following ingredients utilizing conventional mixing techniques:

Table 6.

Ingredient	% w/w
10 % wt. 1:1 responsive polymer network as prepared in Example 1	20.0
Behentrimonium Methosulfate (and) Cetearyl alcohol ¹	2.5
Mineral Oil	5.0

30 ¹ Incroquat Behenyl TMS available from Croda

Into a vessel equipped with a high efficiency homogenizer, the formula amount

of all ingredients is added and allowed to mix to homogeneity. This formulation contains a cationic surfactant and gives an emulsion that is fluid at room temperature but viscosifies above 32°C.

Formulations including an anionic surfactant formulation: An O/W (oil-in-water) emulsion was made by combining the following ingredients utilizing conventional mixing techniques:

Table 7.

Ingredient	% w/w
10 % wt. 1:1 responsive polymer network as prepared in Example 1	20.0
Cetearyl Phosphate (and) Cetearyl alcohol ¹	2.5
Mineral Oil	5.0

¹ Crodafos CES available from Croda

Into a vessel equipped with a high efficiency homogenizer, the formula amount of all ingredients is added, water is added to 100% w/w and allowed to mix to homogeneity. This formulation contains a anionic surfactant and gives an emulsion that is fluid at room temperature but viscosifies above 32°C.

Example 32. Acne Medication: An oil-free, clear, anti-acne treatment is made by combining the following ingredients utilizing conventional mixing techniques:

Table 8.

Ingredient	% w/w
10 % wt. 1:1 responsive polymer network prepared as in Example 1	20.0
Glycerin USP	5.0
Salicylic Acid	2.0
DL-Panthenol	0.5
Germaben® II ¹	0.1
Disodium EDTA	0.2
USP Purified Water	72.2

¹ Germaben®II available from Sutton Laboratories

To one vessel, equipped with a Lightnin' Mixer with a 3 blade paddle prop.

the full amount of USP Purified Water to 100% w/w is added. While maintaining the temperature, with moderate to vigorous mixing, the formula amount of Disodium EDTA, Citric Acid, DL-Panthenol, Glycerin, Salicylic Acid, and Germaben® II is added. These materials are allowed to dissolve at 50°C. After dissolution, the vessel
5 is then cooled to 20°C. To another vessel, equipped with a high efficiency homogenizer, the formula amount of responsive polymer network is added. The responsive polymer network vessel is then cooled to 4°C. After cooling, while vigorously homogenizing, the contents of the first vessel is added to the second vessel, and allowed to mix to homogeneity.

10 The composition displays a flowable clear jelly appearance with excellent spreadability and absorption characteristics at room temperature, and after heating the formulation to 32°C, the composition thickens to a gel-like consistency.

15 Example 33. (a) Oil-free Moisturizer (formulation I): An oil-free, lubricous moisturizer was made by combining the following ingredients utilizing conventional mixing techniques:

Table 9.

Ingredient	% w/w
10% wt 1:1 responsive polymer network as prepared in Example 1	20.0
Glycerin USP	5.0
PPG-2 Myristyl Ether Propionate	3.0
DL-Panthenol	0.5
Germaben® II ¹	0.1
Disodium EDTA	0.2
Citric Acid	0.01
USP Purified Water	71.19

¹ Germaben® II available from Sutton Laboratories

The above ingredients were added and processed as described above for the acne composition. The composition displayed a flowable creamy lotion appearance with excellent emolliency, spreadability and absorption characteristics at room temperature. After heating the formulation to above 26°C, the composition thickened to a gel-like consistency. The viscosity vs. temperature curve is shown in Figure 21 and demonstrates that addition of adjuvants to the composition significantly enhances the responsive polymer network maximum viscosity (>900,000 cps). The use of the poloxamer:poly(acrylic acid) polymer network in the formulation also imparts a unique viscosification effect after application to the skin, which is not evident in typical commercial O/W emulsion formulations (See, Figure 21b).

(b) Oil-free Moisturizer (formulation II): An oil-free, lubricious moisturizer was made by combining the following ingredients utilizing conventional mixing techniques:

Table 10.

Ingredient	% w/w
1:1 polymer network as prepared in Example 1	2.0
Glycerin USP	5.0
Carbopol 980	1.0
D-panthenol, propylene glycol	1.0
Preservative	1.0
Hydrolyzed protein (and) hyaluronic acid	0.5
Sodium hydroxide	0.2
USP Purified Water	90

The above ingredients were added and processed as described above for the acne composition. The composition displayed a flowable creamy lotion appearance with excellent emolliency, spreadability and absorption characteristics at room temperature. After heating the formulation to 26°C, the composition thickens to a gel-like consistency. The addition of adjuvants to the composition significantly enhances the polymer network maximum viscosity.

Example 34. Sunscreen Lotion. An oil-free, lubricious sunscreen lotion was made by combining the following ingredients utilizing conventional mixing techniques:

Table 11.

Ingredient	% w/w
1:1 polymer network as prepared in Example 1	2.0
Glycerin USP	8.0
Carbopol 980	1.0
Parsol MCX	7.0
Myristyl Ether Propionate	5.0
Preservative	1.0
Cyclomethicone	1.0
Sodium hydroxide	0.2
USP Purified Water	74

The above ingredients were added and processed as described above for the 15 acne composition. The composition displayed a flowable creamy lotion appearance with excellent emolliency, spreadability and absorption characteristics at room temperature. After heating the formulation to above 26°C, the composition thickened to a gel-like consistency. The addition of adjuvants to the composition significantly enhances the polymer network maximum viscosity.

20 Example 35. Facial mask. A face mask was made by combining the following ingredients utilizing conventional mixing techniques:

Table 12.

Ingredient	% w/w
1:1 polymer network as prepared in Example 1	1.0
Polyvinyl alcohol	6.0
Polyvinylpyrrolidone (20%)	5.0
D-panthenol, propylene glycol	1.25
Propylene glycol	1.25
USP Purified Water	85.5

10

The above ingredients were added and processed as described above for the acne composition. The composition displayed a flowable creamy lotion appearance with excellent emolliency, spreadability and absorption characteristics at room temperature. After heating the formulation to above 26°C, the composition thickened 15 to a gel-like consistency. The addition of adjuvants to the composition significantly enhances the polymer network maximum viscosity.

Example 36. Facial toner. A face mask was made by combining the following ingredients utilizing conventional mixing techniques:

Table 13.

Ingredient	% w/w
1:1 polymer network as prepared in Example 1	0.01
Hydroxyethyl cetyltrimonium phosphate	1.00
PEG-40 hydrogenated castor oil	2.00
D-panthenol, propylene glycol	0.50
Glycerin	2.00
Witch hazel extract	5.00
USP Purified Water	88.49

30

The above ingredients were added and processed as described above for the acne composition. The composition displayed a flowable appearance with excellent emolliency, spreadability and absorption characteristics at room temperature. After heating the formulation to above 26°C, the composition thickened to a gel-like 5 consistency. The addition of adjuvants to the composition significantly enhances the polymer network maximum viscosity.

Example 36. Solubilization studies of model hydrophobic agents in the poloxamer: poly(acrylic acid) polymer network: estradiol and progesterone. This 10 example is presented to demonstrate the solubilization of a hydrophobic agent in the polymeric network. Progesterone and estradiol were used as the hydrophobic agents in this model solubilization study.

Acrylic acid (99%), fluorescein (98%), β -estradiol (98%), and progesterone (98%) were all obtained from Aldrich and used as received. Pluronic® F127 NF was obtained from BASF. Poly(oxyethylene-b-oxypropylene-b-oxyethylene)-g-poly(acrylic acid) copolymers (responsive polymer network) were synthesized by free-radical 15 polymerization of acrylic acid in the presence of poloxamer as described above. The polymer network copolymers discussed here were composed of about 1:1 ratio of PAA to poloxamer. The rheological properties of polymer network were assessed using LVDV-II+ and RVDV-II+ Brookfield viscometers. The microscopic light 20 scattering of 21 nm poly(styrene) latex particles in deionized water and 1 w% reversibly gelling polymer network was measured using He-Ne laser as described previously (See, Matsuo, E.S., Orkisz, M., Sun, S.-T., Li, Y., Tanaka, T., Macromolecules, 1994, 27, 6791). The solubility of fluorescein and hormones in aqueous solutions was measured by the equilibration of excess solubilizate with the 25 corresponding solution following removal of undissolved species by centrifugation and filtration. Hydrophobic agents were assayed spectrophotometrically at 240 (progesterone) or 280 nm (estradiol), or by using 70/30 w/w H_2SO_4 /MeOH (Tsilifonis-Chafetz reagent). In vitro hormone release studies were conducted using thermostatted, vertical Franz cells. Spunbonded polypropylene microfilters (micron 30 retention, 15-20) were used as a membrane separating feed and receiver phases in

Franz cells. The responsive polymer network, water, ethanol, and 20% PEG in water were observed to wet the membrane. The receiver solutions consisted of 20 w% PEG in water (pH 7) and were stirred by magnetic bars. The feed phases composed of responsive polymer network were loaded with either estradiol or progesterone. Each 5 hormone was dissolved in ethanol and the resulting solution was added into the responsive polymer network.

Equilibrium solubility vs. temperature plots for estradiol and progesterone (partition coefficient octanol/water (P) 7200 and 5888, respectively, in aqueous solutions of Pluronic® F127 polyol and responsive polymer network are presented in 10 Figure 22. It can be seen that increasing temperature and concentration (C) of polymers in the solution raises the amount of the hormone dissolved. In Figure 22a, vertical lines represent critical micellar temperatures (CMT) for corresponding Pluronic F127 polyol solutions. It is interesting to note that the slope of the 15 solubility-temperature plots increased as temperature reached CMT, indicating that solubilization in the Pluronic solutions was predominantly due to the formation of micelles. Similar trend was observed in the responsive polymer network solutions. The S values in 5% aqueous solutions of branched PAA did not exceed 15 and 40 $\mu\text{g/mL}$ at 60 °C for estradiol and progesterone, respectively. The solubility values found for responsive polymer network were the same as S in parent Pluronic solutions 20 of equivalent concentrations. Therefore, it may be suggested that solubilization behaviors of the responsive polymer network are governed by the properties of the poloxamer incorporated into it. Thermodynamic parameters of the solubilization process with responsive polymer network were calculated using the same approximations as in the micellar solubilization with Pluronic polyols. See, Saito, Y., 25 Kondo, Y., Abe, M., Sato, T., Chem. Pharm. Bull., 1994, 42, 1348. Namely, partition coefficient P was estimated from equilibrium solubilities of estradiol in responsive polymer network and water:

$$P = S_{SH}/S_w \quad (13)$$

30 by extrapolating the solubility plots of the steroid in Figure 22 to 100 % responsive polymer network. Using P values obtained from data in Figure 23, we calculated the

standard free energy change (ΔG), standard enthalpy of solubilization (ΔH), and standard entropy of solubilization (ΔS) using the following expressions:

$$\Delta G = -RT\ln P; \Delta H = -R\Delta\ln P/\Delta(1/T); \Delta S = (\Delta H - \Delta G)/T \quad (14)$$

Thermodynamic parameters obtained along with P values are given in Table 13.

5 Apparent partition coefficients and thermodynamic parameters for solubilization of estradiol by responsive polymer network.

Table 13.

T, K	P=SSH/S	ΔG kJ/mol	ΔH kJ/mol	ΔS J/mol
277	490	-14.3		68.6
293	520	-15.2		52.0
310	660	-16.7	4.72	53.9
323	660	-17.4		54.0
333	660	-18.0		54.0

10 Negative ΔG values indicate spontaneous solubilization at all temperatures, whereas positive ΔH shows that the solubilization was endothermic, similar to the solubilization of estriol, as well as indomethacin, by the poloxamer. Notably, ΔS of solubilization was always positive, suggesting that the more ordered water molecules

20 surrounding hydrophobic estradiol molecules moved to the less ordered bulk phase when the estradiol was transferred to the hydrophobic core of PPG segments in responsive polymer network. The aggregation of the PPG segments at elevated temperatures provides not only temporary cross-linking in the gel, but also a thermodynamically "friendly" environment for the hydrophobic drugs. Indeed, one
25 can express the free energy of formation of the aggregate core-water interface in responsive polymer network as:

$$\Delta G = [\sigma P_w(1 - \phi) + \sigma W_D \phi](4\pi R^2/n) \quad (15)$$

30 where σP_w and σW_D are the interfacial tensions between pure PPO polymer and water and between water and the drug, respectively; ϕ is the volume fraction of the drug within PPO core; R is the effective radius of the core, and n is the aggregation number.

Equation (3) shows that solubilization of a hydrophobic drug of high σ_{WD} should increase the stability of the aggregate. The solubilization process was found to decrease the critical micellization concentration and substantially increase the micellar core radius in Pluronic surfactants (Hutter, P.N. *et al.*, "In Solubilization in Surfactant Aggregates", Christian, S.D., Ed., Marcel Dekker, New York, 1995). A similar trend is indicated by the lowering the onset of gelation of the responsive polymer network upon solubilization of fluorescein (LogP 2.1) (Figure 24). The solubilization of hydrophobic drugs by responsive polymer network, analogous to the micellar solubilization of drugs by poloxamer, suggests that the responsive polymer network can be an effective vehicle in drug delivery.

Our *in vitro* study of hormone release from responsive polymer network shows an increase in the initial transport rate with either decreasing total polymer concentration in the formulation or decreasing temperature (Figure 25). These effects are related to the changes in macroscopic viscosity of the responsive polymer network, which erodes more rapidly from the feed phase through the membrane into the receiver compartment as the viscosity decreases (Figure 26). The degree of the responsive polymer network erosion was measured by weighing hormone-loaded responsive polymer network before and after kinetic experiment.

Figure 27 shows that the relative amount of progesterone penetrating into the receiver phase decreased 4-fold with the increase of total polymer concentration, whereas the total relative amount of progesterone stayed almost constant as total polymer concentration in the responsive polymer network increased. This result shows the existence of two routes of transport of hydrophobic drugs in our model system. Firstly, the drug incorporated into aggregates within the responsive polymer network system can flow through the membrane along with the erosion of the responsive polymer network; secondly, the drug not associated with the responsive polymer network aggregates can diffuse out of the responsive polymer network in the feed phase. The second process should not be related to the viscosity of the responsive polymer network. Indeed, the dynamic light scattering experiment shows no dramatic change of diffusivity of poly(styrene) latex particles in the responsive polymer

network as temperature rises thereby increasing macroscopic viscosity more than 10-fold (Figure 28). This result indicates that the viscosity of the responsive polymer network is essentially unaffected on the microscopic scale.

5

Appendix A attached.

APPENDIX A

Cosmetic Bench Reference

Function Definitions

Abrasive: abrades, smoothes, polishes	Emollient: softens, smoothes skin
Absorbent powder: takes up liquids, sponge-like action	Emulsifier: a surface-active agent (surfactant) that promotes the formation of water-in-oil or oil-in-water emulsions
Absorption base: forms water-in-oil emulsions	Enzymes: complex proteins produced by living cells that catalyze biochemical reactions at body temperature
Acidulent: acidifies, lowers pH, neutralizes alkalis	Fiber: strands of natural or synthetic polymers; for instance, cotton, wool, silk, nylon, polyester
Amphoteric: capable of reacting chemically either as an acid or a base; amphoteric surfactants are compatible with anionic and cationic surfactants	Film former: solution of a polymer that forms films when the solvent evaporates after application to a surface
Analgesic: relieves pain	Fixative: fixes or sets perfumes; retards evaporation; promotes longer lasting aroma
Antacid: neutralizes stomach acidity	Flavor: imparts a characteristic taste (and aroma) to edible foods and drinks; sometimes used in lip products
Antibacterial: destroys/inhibits the growth/reproduction of bacteria	Foam booster: enhances quality and quantity of lather of shampoos
Anti-caking: prevents or retards caking of powders; keeps powders free-flowing	Foamer: a surface-active agent (surfactant) that produces foam: an emulsion of air-in-water
Anti-dandruff: retards or eliminates dandruff	Foam stabilizer: see Foam booster
Antifoam: suppresses foam during mixing	Fungicide: inhibits or destroys growth of fungi
Anti-inflammatory: reduces, suppresses, counteracts inflammation	Gellant: a gelling agent: forms gels: includes a wide variety of materials such as polymers, clays and soaps
Anti-irritant: reduces, suppresses or prevents irritation	Glosser: furnishes a surface luster or brightness: usually used in lip or hair products
Antimicrobial: destroys, inhibits or suppresses the growth of microorganisms	Hair colorant: see Colorant
Antioxidant: inhibits oxidation and rancidity	Hair conditioner: see Conditioner
Antiperspirant: reduces or inhibits perspiration	Hair dye: imparts a new permanent or semi-permanent color to hair
Antipruritic: reduces or prevents itching	Hair-set polymer: polymer and/or resins used to maintain desired hair shape
Antiseptic: inhibits the growth of microorganisms on the skin or on living tissue	Hair-set resin: see Hair-set polymer
Antistat: reduces static by neutralizing electrical charge on a surface	Hair waving: see Reducing agent and Neutralizer
Astringent: contracts organic tissue after application	Humectant: absorbs, holds and retains moisture
Binder: promotes cohesion of powders	Hydrotrope: enhances water solubility
Bleaching agent: lightens color, oxidizing agent	Intermediate: basic chemicals which are chemically modified to obtain the desired function
Botanical: natural plant derivative	Lathering agent: a surface active agent (surfactant) that forms a foam or lather on mixing with air in solution; see also Foamer
Buffer: helps maintain original pH (acidity or basicity) of a preparation	Lubricant: reduces friction, smoothes, adds slip
Carrier: a vehicle or base used for a preparation	Moisture barrier: retards passage of moisture or water
Chelate: form a complex with trace-metal impurities, usually calcium or iron	Moisturizer: aids in increasing the moisture content of the skin through humectant or barrier action
Colorant: adds color, may be a soluble dye or an insoluble pigment	Neutralizer: an oxidizing agent used in hair waving that stops the action of the reducing agent and re-establishes the disulfide linkages in hair
Conditioner: improves condition of skin and hair	Oil absorbent: see Absorbent powder
Coupling agent: aids in solubilization or emulsification of incompatible components	Ointment base: an anhydrous mixture of oleaginous components used as a vehicle for medicaments
Decolorant: removes color by adsorption, bleaching or oxidation	Opacifier: opacifies clear liquids or solids
Denaturant: used to denature ethyl alcohol	Oxidant: oxidizing agent, neutralizes reducing agents, bleaching agent
Dental powder: powdered dentifrice	Pearlant: imparts a pearly texture and luster
Deodorant: destroys, masks or inhibits formation of unpleasant odors	Perfume solvent: see Solvent and Solubilizer
Depilatory: removes hair chemically	
Detergent: a surface-active agent (surfactant) that cleans by emulsifying oils and suspends particulate soil	
Disinfectant: destroys pathogenic microorganisms	
Dispersant: promotes the formation and stabilization of a dispersion or suspension	
Dye stabilizer: see Stabilizer	

Peroxide stabilizer: see Stabilizer

Pigment: a finely powdered insoluble substance used to impart color, luster or opacity

Plasticizer: plasticizes (makes more flexible) polymeric films or fibers

Polish: smooths; adds gloss and luster

Polymer: a very high molecular weight compound consisting of repeating structural units

Powder: a solid in the form of fine particles

Preservative: protects products from spoilage by microorganisms

Propellant: pressurized gas in a container used to expel the contents when pressure is released by opening a valve

Protein: naturally occurring complex combinations of amino acids

Reducing agent: reduces a chemical compound usually by donating electrons; neutralizes oxidizing agents

Refatting agent: adds oils materials to the surface of substrates, e.g., skin and hair

Resin: nonvolatile solid or semisolid organic substances obtained from plants as exudates or prepared by polymerization of simple molecules

Sequestrant: forms coordination complexes with multivalent positive ions

Silicone: polymeric organic silicon compounds which are water resistant

Skin protectant: protects skin from environmental

Solubilizer: solubilizes, usually into aqueous vehicles, normally insoluble materials, such as fragrances, flavors, oils, etc.

Solvent: usually liquids capable of dissolving other substances

Stabilizer: added to stabilize emulsions and/or suspensions

Stimulant: produces a temporary increase in the functional activity of an organism or any of its parts

Surfactant (surface-active agent): lowers surface tension between two or more incompatible phases; soaps, detergents, wetting agents, solubilizing agents and emulsifying agents are typical surfactants; surfactants are classified as anionic, cationic, nonionic and amphoteric; anionic surfactants are negatively charged, cationic surfactants have no electrical charge

Suspending agent: keeps finely divided solid particles in suspension

Sweetener: sweetens to provide a more pleasant taste

Tanning accelerator: accelerates the tanning of skin

Thickener: thickens or increases viscosity/consistency

Thixotropy: the property of certain gels and emulsions of becoming more fluid or less viscous when shaken or stirred

UV absorber: used as a sunscreen and to protect preparations from degradation by UV radiation

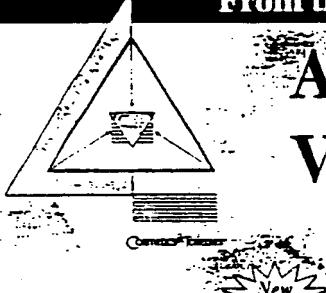
UVA absorber: absorbs in the range 320-400 nanometers (nm)

UVB absorber: absorbs in the range 290-320 nanometers (nm)

Wax: any of numerous substances of plant, animal or synthetic origin that contain principally esters of higher fatty acids and higher fatty alcohols; free fatty alcohols, fatty acids and hydrocarbons may also be present; waxes derived from petroleum products are mainly high-molecular-weight hydrocarbons

Wetting agent: a surface-active agent (surfactant) that lowers the surface and interfacial tension, facilitating the wetting of surfaces

From the Editors of *Cosmetics & Toiletries* magazine



Hair Care

Adsorption of cationic polymers

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Ceramide — D. Braida et al

Melanins — K.C. Brown and C. Prota

Men's hair coloring — S. Cusperson

Skin permeation of hair dyes — H. Beck et al

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Functions

Abrasive	Hydrochloric acid	Marine collagen
Azuki beans	Lactic acid	Mushroom (<i>Coriolus versicolor</i>) extract
Almond (<i>Prunus amygdalus</i>) meal, shell granules	Nitric acid	Musk rose (<i>Rosa moschata</i>) oil
Aluminum silicate	Phosphoric acid	Perfluorodecalin
Apricot (<i>Prunus armeniaca</i>) kernel powder, shells	Sodium bisulfate	Quaternium-51
Hydrated silica	Sulfuric acid	Rubus <i>thunbergii</i> extract
Jojoba (<i>Buxus chinensis</i>) seed powder	Tartaric acid	Serum protein
Luffa <i>cylindrica</i>		Stenocalyx <i>mucilii</i> extract
Olive stone granules		Tricholoma <i>maiusake</i> extract
Oyster shell powder		
Peach (<i>Prunus persica</i>) pit powder	AHA	
Peach (<i>Prunus persica</i>) stone granules	Apple (<i>Pyrus malus</i>) extract	
Polyethylene	Apricot (<i>Prunus armeniaca</i>) kernel powder	Antibacterial
Polyethylene HEC granules	Citric acid	Ammonium iodide
Polyethylene oxidized, P. spheres	Ethyl lactate	Chlorhexidine
Polystyrene	Glycolic acid	Chlorhexidine diacetate, C. digluconate
Pumice	Lactic acid	Chlorhexidine dihydrochloride
Rice (<i>Oryza sativa</i>) bran	Malic acid	Chlorphenesin
Silica and S. colloidal	Sodium lactate	Hexamidine diisethionate
Sodium chloride	Tartaric acid	Hexetidine
Walnut (<i>Juglans regia</i>) shell powder		Iceland moss (<i>Cetraria islandica</i>) extract
		Lactoferrin
Absorption base		Lauralkonium bromide, L. chloride
1,2,6-Hexanetriol		Laurtrimonium chloride
Kaolin		Laurylpynidinium chloride
Percolatum		Mauritiella armata extract
Rice (<i>Oryza sativa</i>) starch		Mushroom (<i>Cordyceps sambolifera</i>) extract
Soy (<i>Glycine soja</i>) sterol		Orange blossom extract
Zeolite		Orange (<i>Citrus aurantium dulcis</i>) peel extract
		PEG-42 Ebiriko ceramides extract
Absorhent powder		Peppermint (<i>Mentha piperita</i>) extract
Corn (<i>Zea mays</i>) starch		Philodendron (<i>Philodendron amurense</i>) extract
Maltodextrin		Pine (<i>Pinus sylvestris</i>) needle extract
Nylon-12		Polymethoxy bicyclic oxazolidine
Oat (<i>Avena sativa</i>) bran, flour, meal		Quaternium 73
Zeolite		Rubus <i>thunbergii</i> extract
		Tea tree (<i>Melaleuca alternifolia</i>) oil
Acidulent		Triclocarban
Acetic acid		Undecylenic acid
Citric acid		
Fumaric acid		Anticaking
Glutamic acid		Aluminum starch octenylsuccinate
Glycolic acid		Calcium stearate

Antiacne	Clays (white, yellow, red, green, pink)
	Perfluorodecalin
	Salicylic acid
	Sulfur
Anti-aging	
	Basil (<i>Ocimum basilicum</i>) extract
	Carrot (<i>Daucus carota</i>) extract
	Catalpa <i>kaempferi</i> extract
	Ceramide 33 (liquid soy extract)
	Crataegus <i>cuneata</i> extract
	Eugenia <i>jambolana</i> extract
	Fomes <i>fomentarius</i> extract
	Fomitopsis <i>pinicola</i> extract
	Ganoderma <i>lucidum</i> oil
	Ginseng (<i>Panax ginseng</i>) extract
	Hyaluronic acid
	Hydrolyzed serum protein
	Hydrolyzed soy flour
	Isachne <i>puichellia</i> extract
	Lactoferrin
	Lady's Thistle (<i>Silybum marianum</i>) extract
	Ligusticum <i>jeholense</i> extract

Antibacterial	
	Ammonium iodide
	Chlorhexidine
	Chlorhexidine diacetate, C. digluconate
	Chlorhexidine dihydrochloride
	Chlorphenesin
	Hexamidine diisethionate
	Hexetidine
	Iceland moss (<i>Cetraria islandica</i>) extract
	Lactoferrin
	Lauralkonium bromide, L. chloride
	Laurtrimonium chloride
	Laurylpynidinium chloride
	Mauritiella armata extract
	Mushroom (<i>Cordyceps sambolifera</i>) extract
	Orange blossom extract
	Orange (<i>Citrus aurantium dulcis</i>) peel extract
	PEG-42 Ebiriko ceramides extract
	Peppermint (<i>Mentha piperita</i>) extract
	Philodendron (<i>Philodendron amurense</i>) extract
	Pine (<i>Pinus sylvestris</i>) needle extract
	Polymethoxy bicyclic oxazolidine
	Quaternium 73
	Rubus <i>thunbergii</i> extract
	Tea tree (<i>Melaleuca alternifolia</i>) oil
	Triclocarban
	Undecylenic acid
Anticaking	
	Aluminum starch octenylsuccinate
	Calcium stearate
	Distarch phosphate
	Hydrated silica



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Magnesium myristate. M. silicate	Niacinamide ascorbate	Ethyiparaben
Polyethylene. micronized	Orange (<i>Citrus aurantium dulcis</i>) peel extract	Eucalyptus (<i>Eucalyptus globulus</i>) extract
Silica silicate	Orange blossom extract	Fennel (<i>Foeniculum vulgare</i>) extract
Sodium aluminum silicate	Palmetto extract	Garlic (<i>Allium sativum</i>) extract
Zinc stearate	Palmitoyl collagen amino acids	Glyceryl caprylate, G. laurate
Anticaries agent	Passion flower (<i>Passiflora laeta</i>) fruit extract	Hexamidine diethoniumate
Cetylamine nydrofluoride	Pauiovia <i>imperialis</i> extract	Hinokitiol
Olaflur	Salicylic acid	Honeysuckle (<i>Lonicera caprifolium</i>) extract
Sodium fluoride	Shea butter (<i>Butyrospermum parkii</i>)	Lichen (<i>Usnea barbata</i>) extract
Stearyl trihydroxyethyl propylenediamine dihydrofluoride	Sodium carboxymethyl beta-glucan	Myristalkonium chloride
Anticellulite	Soy (<i>Glycine soja</i>) protein	Pentylene glycol
Amunopnyline	Stearyl glyceryl etherate	Phenetethyl alcohol
Bladderwrack (<i>Fucus vesiculosus</i>) extract	Stenocalyx <i>niculii</i> extract	Phenol
Butcherbroom (<i>Ruscus aculeatus</i>) extract	Tocopherol acetate, T. nicoulate	Phenoxyethanol
Carcinis camogia extract	Trichomonas <i>japonica</i> extract	Phenoxyisopropanol
Fomes fomentarius extract	Willow (<i>Salix alba</i>) extract	Phenyl mercuric acetate, P.m. benzoate, P.m. borate
Fomistopsis pinicola extract	Witch hazel (<i>Hamamelis virginiana</i>) extract	o-Phenyliphenol
Ivy extract	Withania somnifera extract	Polymethoxy bicyclic oxazolidine
Mushroom (<i>Conioius versicolor</i>) extract	Yarrow (<i>Achillea millefolium</i>) extract	Potassium sorbate
TEA-hydroiodide	Zinc lactate	Propylparaben
Tricholoma matsutake extract	Anti-irritant	Ricinoleamodioxypropyltrimonium ethosulfate
Antidandruff	Acetyl monooctanolanamine	Sage (<i>Salvia officinalis</i>) extract
Burdock (<i>Arctium lappa</i>) extract	Allanoic acid	Sodium benzoate, S. pyrithione
Chloroxviol	Allanoic acetyl methionine, A. glyceryl etherate	Sodium ricinoleate, S. shale oil sulfonate
Corydalis ambigua extract	Azelamide MEA	Thimerosal
Disodium undecylenamide MEA-sulfosuccinate	Betaine	Thyme (<i>Thymus vulgaris</i>) extract
Ginger root extract	Calendula <i>officinalis</i> extract	Thymol
Inga edulis extract	Cocamidopropyl betaine	Triclocarban
Mauritiella armata extract	Coceth-7 carboxylic acid	Triclosan
Myristalkonium saccharinata	Cornflower (<i>Centaurea cyanus</i>) extract	Undecylenamidopropyltrimonium methosulfate
PEG-6 undecylenate	Diisostearyl dimer dilinoleate	Undecylenic acid
Piroctone olamine	Dipalmitoyl cystine	Zinc oxide, Z. PCA
Resorcinol	Green tea extract	Zinc pyrithione, Z. undecylenate
Rosemary (<i>Rosmarinus officinalis</i>) extract	Hydrolyzed sweet almond protein	Antioxidant
Sodium snale oil sulfonate	Hydroxypropyltrimonium gelatin	Ascorbic acid
Stenocalyx <i>niculii</i> extract	Lauroyl collagen amino acids	A. polypeptide
Undecylenamide DEA	l-Lysine lauroyl methionine	Ascorbyl oleate, A. palmitate
Willow (<i>Salix alba</i>) bark extract	Mallow extract	Beta-carotene
Zinc pyrithione	Matricaria (<i>Chamomilla recutita</i>) extract	BHA
Antifungal	Palmitoyl hydrolyzed milk protein	BHT
Black wainut (<i>Juglans nigra</i>) extract	Palmitoyl hydrolyzed wheat protein	l-Butyl hydroquinone
Conetlow <i>rr</i> (<i>Echinacea angustifolia</i>) extract	Palmitoyl keratin amino acids	Dilauryl thiodipropionate
Orange blossom extract	PEG-12 palm kernel glycerides	Dimyristyl thiodipropionate
Pfaffia pauciflora extract	PEG-28 glyceryl tallowate	Disodium EDTA
Anti-inflammatory	PEG-30 glyceryl monocoate	Distearyl thiodipropionate
Allantoin polygalacturonic acid	PEG-60 almond glycerides	Dodecyl gallate
Bisabolol	PEG-78 glyceryl cocoate	EDTA
Black poplar (<i>Populus nigra</i>) extract	PEG-82 glyceryl tallowate	Ervthorbic acid
Brassica rapa-depressa extract	PEG-200 glyceryl tallowate	Ferulic acid
Butcherbroom (<i>Ruscus aculeatus</i>) extract	Propionyl collagen amino acids	Grape (<i>Vitis vinifera</i>) seed extract
Calendula <i>officinalis</i> extract	PVP	Green tea extract
Catalpa <i>kaempferia</i> extract	Saccharomyces lysate extract	HEDTA
Celastrus paniculata extract	Sodium C12-15 pareth-15 sulfonate	Hydroquinone
Ceramide 33 (liquid soy extract)	Sodium lauroamphoacetate	Hydroquinone-beta-D-glucopyranoside
Chaparral (<i>Larrea mexicana</i>) extract	Soy (<i>Glycine soja</i>) protein	p-Hydroxyanisole
Coneflower (<i>Echinacea angustifolia</i>) extract	Undecylenoyl collagen amino acids	Lactoferrin
Cornflower (<i>Centaurea cyanus</i>) extract	Valeren (<i>Valeriana officinalis</i>) extract	Lysine PCA
Dipotassium glycyrrhizinate	Antimicrobial	Melazin
Euphorionum fortunei extract	Benzalkonium chloride	Methyl gallate
Euphrasia officinalis extract	Benzoic acid	Niacinamide ascorbate
Ficus racemosa extract	Benzyl alcohol	Nordihydroguaiaretic acid
Golden seal (<i>Hydrastis canadensis</i>) root extract	Bromochlorophene	Oat (<i>Avena sativa</i>) extract
Guaiaculene	2-Bromo-2-niopropane-1,3-diol	Oryzanol
Horse chestnut (<i>Aesculus hippocastanum</i>) extract	Butylparaben	Penusodium pentenate
Jujube (<i>Zizyphus jujuba</i>) extract	Capryloyl collagen amino acids	Pentetic acid
Laminana japonica extract	Capryloyl glycine, C. keratin amino acids	Propyl gallate
Licorice (<i>Glycyrrhiza glabra</i>) extract	Captan	Retinyl palmitate polypeptide
Ligustrum <i>jehoense</i> , L. <i>lucidum</i> extract	Cetethydimonium bromide	Rosemary (<i>Rosmarinus officinalis</i>) extract
Matricaria (<i>Chamomilla recutita</i>) extract	Cervi pyridinium chloride	Saccharomyces lysate extract
Melaleuca <i>uncinata</i> extract	Chlorothymol	Sage (<i>Salvia officinalis</i>) extract
Melia azadirachta extract	Chloroxylenol	Sodium ascorbate, S. erythorbate
	Citron oil	Sodium metabisulfite
	Copper PCA	Sodium selenate, S. sulfite
	Dichlorobenzyl alcohol	Superoxide dismutase
	Dilauryldimonium chloride	Tea (<i>Camellia sinensis</i>) extract
		Tetrasodium EDTA
		Tocopherol

Functions

Tocopherol acetate. T. linoleate	Lactamidopropyl trimonium chloride	Sambucus nigra oil
Wild marjoram (<i>Origanum vulgare</i>) extract	Lauryldimonium hydroxypropyl hydrolyzed collagen	Sanguisorbae root extract
Yeast (<i>Saccharomyces cerevisiae</i>) extract: (Faex)	Linoleamidopropyl dimethylamine dimer dilinoleate	Selenium spp. extract
Antiperspirant		
Allanton-aluminum chlorhydrate	Clealkonium chloride	Shorea robusta extract
Aluminum capryloyl hydrolyzed collagen	PEG-2 cocamine	Tannic acid
Aluminum chlorhydrat-gly. A. chloride	PEG-2 cocornonium chloride	Walnut (<i>Juglans regia</i>) leaf extract, oil
Aluminum chlorhydrate. A. chlorhydrat	PEG-2 oleammonium chloride	Wheat (<i>Triticum vulgare</i>) protein
Aluminum PCA. A. sesquichlorhydrat	PEG-8 caprylic/capric glycerides	White nettle (<i>Lamium album</i>) extract
Aluminum undecylenoyl collagen amino acids	PEG-10 cocamine	Witch hazel (<i>Hamamelis virginiana</i>) extract
Aluminum zirconium pentachlorhydrate	PEG-15 sovamine	Xanthoxylum bungeanum extract
Aluminum zirconium tetrachlorhydrate	PPG-9 diethylmonium chloride	Zinc lactate
Aluminum zirconium tetrachlorhydrate GLY	PPG-25 diethylmonium chloride	Ziziphus jujuba extract
Aluminum zirconium trichlorhydrate	PPG-40 diethylmonium chloride	
Aluminum-zirconium-glycine powder	Propylene glycol stearate	
Sage (<i>Salvia officinalis</i>) extract	Quaternium-26, -27, -53, -62, -72	
Tormentil (<i>Potentilla erecta</i>) extract	Rapeseedamidopropyl benzylidimonium chloride	
Zirconium chlorhydrate	Rapeseedamidopropyl epoxypropyl dimonium chloride	
Antiseptic		
Aluminum PCA	Silica, colloidal	Binder
Azadirachta indica extract	Sorbitan caprylate	Aluminum starch octenylsuccinate
2-Bromo-2-nitropropane-1,3-diol	N-Soya-(3-amidopropyl)-N,N-dimethyl-N-ethyl ammonium ethyl sulfate	Boron nitride
Calendula amurensis extract	Soyethyl morpholinium ethosulfate	C20-40, C30-50, C40-60 alcohols
p-Chloro-m-cresol	Soyethylidimonium ethosulfate	Calcium stearate
Clove (<i>Eugenia caryophyllus</i>) oil	Stearalkonium chloride	Cellulose gum
Crataegus cuneata extract	Stearamidopropyl benzylidimonium chloride	Dihydroabietyl behenate
Diclorobenzyl aconoi	Stearamidopropyl ethyldimonium ethosulfate	Diisostearyl malate
Entada phaseoloides extract	Stearimonium chloride	Diocetyl sebacate
Eucalyptus (<i>Eucalyptus globulus</i>) extract	N-Stearyl-(G-amidopropyl)-N,N-dimethyl-N-ethyl ammonium ethyl sulfate	Distarch phosphate
Golden seal (<i>Hydrastis canadensis</i>) root extract	Wheat germamidopropyl ethyldimonium ethosulfate	Ethylcellulose
Hexachlorophene		Gellan gum
Melia australasica. M. azadirachta extract		Hydrogenated jojoba oil
Methyl salicylate		Isocetyl alcohol, l. palmitate
Orange (<i>Citrus aurantium dulcis</i>) peel extract		Isopropyl isostearate
Oxyquinoline sulfate		Isostearyl erucate, l. isostearate
Pfaffia paniculata extract		Isostearyl neopentanoate
Potassium abietoyl hydrolyzed collagen		Maltodextrin
PVP-iodine		Methylcellulose
Silver nitrate		Microcrystalline cellulose
Sodium salicylate		Ocetyl palmitate
Sterculia platanifolia extract		Octyldecyl myristate
Tea tree (<i>Melaleuca alternifolia</i>) oil		bis-Octyldodecyl stearoyl dimer aminoleate
Tormentil (<i>Potentilla erecta</i>) extract		Octyldodecyl stearoyl stearate
Xanthoxylum bungeanum extract		Olevi oleate
Antistat		PEG-20, -75, -150, -240, -350
Acetamide MEA		Polydipentene
Acetamidopropyl trimonium chloride		Polyethylene: P., micronized
6-(N-Acetylamo)4-oxyhexyltrimonium chloride		PTFE
Alkyl dimethyl betaine		PVP
Babassuamidopropalkonium chloride		Sorbitol
Behenamidopropyl ethyldimonium ethosulfate		Synthetic wax
Behenamidopropyl hydroxyethyl dimonium chloride		Tapioca dextrin
Carboxymethyl chitin		Tridecyl behenate, T. neopentanoate
Cetyl morpholinium ethosulfate		Tridecyl stearoyl stearate
Cetrimonium chloride		Trisodium HEDTA
Chitin		
Chitosan		Biol. polymer
Cocamidopropyl ethyldimonium ethosulfate		Distarch phosphate
Cocodimonium hydroxypropyl hydrolyzed rice protein		Dog rose (<i>Rosa canina</i>) seed extract
Cocodimonium hydroxypropyl hydrolyzed soy protein		Hydrogen peroxide
Dimethylcione hydroxypropyl trimonium chloride		Kojic acid
Dimethyl behenamine. D. cocamine		Mulberry (<i>Morus nigra</i>) extract
Dimethyl palmitamine. D. soyamine		Sanguisorbae root extract
Dimethyl tallowamine		
Dioleylamidooethyl hydroxyethylmonium methosulfate		Botanical
Dipalmitoylethyl hydroxyethylmonium methosulfate		Acacia
N-Dodecyl-N,N-dimethyl-N-(dodecyl acetate) ammonium chloride		Acacia farnesiana extract
Erucamidopropyl hydroxysultaine		Agrimony (<i>Agrimonia eupatoria</i>) extract
Glyceryl monopyruvoglutamate		Alder (<i>Alnus firma</i>) extract
Hydrogenated tallowamine oxide		Alfalfa (<i>Medicago sativa</i>) extract
Isoolecamidopropyl dimethylamine		Algae (<i>Ascophyllum nodosum</i>) extract

Functions

Asparagus officinalis extract	Cucumber (Cucumis sativus) extract	Jasmine (Jasminum officinale) extract
Astragalus sinicus extract	Cypress (Cupressus sempervirens) extract	Job's tears (Coix lacryma-jobi) extract
Avens (Geum rivale) extract	Dandelion (Taraxacum officinale) extract	Jojoba (Buxus chinensis) seed powder
Avocado (Persea gratissima) extract	Date (Phoenix dactylifera) extract	Juniperus communis extract
Balm mint (Melissa officinalis) extract, oil extract	Dead Sea Mud, Salts	Kelp (Macrocystis pyrifera) extract
Banana (Musa sapientum) extract	Dog rose (Rosa canina) hips extract	Kiwi (Actinidia chinensis) fruit extract, seed oil
Barley (Hordeum vulgare) extract	Dyer's broom extract	Kola (Cola acuminata) extract
Basil (Ocimum basilicum) extract	Eleuthero ginseng (Acanthopanax senticosus) extract	Kramena triandra extract
Bearberry (Arctostaphylos uva-ursi) extract	Elm (Ulmus campestris) extract	Lady's mantle (Alchemilla vulgaris) extract
Bee pollen extract	Eucalyptus (Eucalyptus globulus) extract	Lady's Thistle (Silybum marianum) extract
Beer (Beta vulgaris) extract	Eucalyptus globulus oil	Laurel (Laurus nobilis) extract
Betaglucan	Eucommia ulmoides extract	Lavender (Lavandula angustifolia) extract, water
Bilberry (Vaccinium myrtillus) extract	Euphrasia officinalis extract	Lemon (Citrus medica limonum) extract, juice
Biotinolignoids	Evening primrose (Oenothera biennis) extract, oil	Lemon biotinolignoids extract
Birch (Betula alba) bark extract, leaf extract	Everlasting (Helichrysum arenarium) extract	Lemongrass (Cymbopogon schoenanthus) extract
Birch (Betula platyphylla japonica) extract	Fennel (Foeniculum vulgare) extract	Leopard flower (Belamcanda chinensis) root extract
Bitter orange (Citrus aurantium amara) extract, flower extract, peel extract	Fenugreek extract	Lettuce (Lactuca sativa) extract
Black cohosh (Cimicifuga racemosa) extract	Fermented rice (Oryza sativa) extract	Licorice (Glycyrrhiza glabra) extract
Black currant (Ribes nigrum) extract	Fern (Dryopteris filix-Mas) extract	Lilac (Syringa vulgaris) extract
Black henna extract	Fig (Ficus carica) extract	Linden (Tilia argentea) extract
Black poplar (Populus nigra) extract	Fir needle extract	Linden (Tilia cordata) extract, water
Black walnut (Juglans nigra) extract	Fumitory (Fumaria officinalis) extract	Loquat (Eriobotrya japonica) leaf extract
Bladderwrack (Fucus vesiculosus) extract	Gardenia (Gardenia) extract	Maidenhair fern extract
Borage (Borago officinalis) extract	Garlic (Allium sativum) extract	Magnolia kobus extract
Buckthorn (Frangula alnus) extract	Gelidium cartilagineum	Mallow extract
Burdock (Arctium lappa) extract	Gentian (Gentiana lutea) extract	Mandragora officinarum extract
Burdock (Arctium minus) root extract	Geranium maculatum extract	Mannan
Burnet extract	Ginger root extract	Marigold
Butcherbroom (Ruscus aculeatus) extract	Ginkgo biloba extract	Marine sills
Cabbage rose (Rosa centifolia) extract	Ginseng (Panax ginseng) extract	Mauritania (Chamomilla recutita) extract
Calamus (Acorus calamus) extract	Glycyrrhetic acid	Meadowsweet (Spiraea ulmaria) extract
Calendula officinalis extract	Glycyrrhizic acid	Melon (Cucumis melo) extract
Cader (Cupressus spinoza) extract	Glycyrrhizin, ammoniated	MEA iodine
Capicum trutescens extract, C.I. oleoresin	Golden seal (Hydrastis canadensis) root extract	Mistletoe (Viscum album) extract
Caraway (Carum carvi) extract	Goldthread (Coptis japonica) extract	Mugwort (Artemisia princeps) extract, water
Carageenan (Chondrus crispus)	Gotu kola extract	Mulberry (Morus alba) root extract
Carrot (Daucus carota) extract	Grape (Vitis vinifera) distillate, extract	Mulberry (Morus bombycis) root extract
Carrot (Daucus carota sativa) oil	Grape (Vitis vinifera) leaf, seed extract	Mushroom extract
Cassia sanguinalis extract	Grape skin extract	Myrrh (Commiphora myrrha) extract
Celandine (Chelidonium majus) extract	Grapefruit (Citrus grandis) peel extract	Nasturtium extract
Chamomile (Anthemis nobilis) extract, oil	Green bean (Phaseolus lunatus) extract	Neroli extract
Chaparral (Larrea mexicana) extract	Ground Ivy (Glechoma hederacea) extract	Nettle (Urtica dioica) extract
Cherry (Prunus speciosa) leaf extract	Guarana (Paullinia cupana) extract	Oak (Quercus) bark extract
Cherry bark, C.b. extract	Harpagophytum procumbens extract	Oak root extract
Chestnut (Castanea sativa) extract	Hayflower extract	Oat (Avena sativa) bran, bran extract, flour, protein
Chinese hibiscus (Hibiscus rosa-sinensis) extract	Hazel (Corylus avellana) nut extract	Oat flower
Chlorella vulgaris extract	Henna (Lawsonia inermis) extract	Olive (Olea europaea) extract, leaf extract
Cimicifuga foetida rhizome extract	Hesperidin, H. methyl chalcone	Onion (Allium cepa) extract
Cinchona succirubra extract	Hibiscus sabdariffa extract	Orange blossom extract
Citroflavonoids, water soluble	Hibiscus syriacus extract	Orange (Citrus aurantium dulcis) flower extract, peel extract
Citrus bioflavonoid complex	High beta-glucan barley flour	Pansy (Viola tricolor) extract
Clary extract	Honeysuckle (Lonicera caprifolium) extract	Papaya (Carica papaya) extract
Clove (Eugenia carophyllus) extract	Honeysuckle (Lonicera japonica) leaf extract	Parsley (Carum petroselinum) extract
Clover (Trifolium pratense) extract	Hops (Humulus lupulus) extract	Passion flower (Passiflora laurifolia) fruit extract
Cnidium officinale rhizome extract, C.o. water	Horse chestnut (Aesculus hippocastanum) extract	Passionflower (Passiflora incarnata) extract
Coffee (Coffea arabica) bean extract	Horsechestnut extract	Pea (Pisum sativum) extract
Colloidal oatmeal	Houttuynia cordata extract	Peach (Prunus persica) extract, leaf extract
Coltsfoot (Tussilago farfara) leaf extract	Hyacinth (Hyacinthus orientalis) extract	Pelargonium capitatum extract
Comfrey (Symphytum officinale) leaf extract	Hydrocotry (Centella asiatica) extract	Pellitory (Parietaria officinalis) extract
Condurungo extract	Hydrolyzed oat protein, soy flour	Pennyroyal (Mentha pulegium) extract
Coneflower (Echinacea angustifolia) extract	Hypocnemis perforatum extract	Peony (Paeonia alba) extract
Corallina officinalis	Hyssop (Hyssopus officinalis) extract	Peony (Paeonia officinalis) root extract
Corchorus olitorius extract	Indian cress (Tropaeolum majus) extract	Peppermint (Mentha piperita) extract, oil
Coriander (Coriandrum sativum) extract	Isodonis Japonicus extract	Penilla ocyoides extract
Corn (Zea mays) cob powder, silk extract	Ivy extract	Penwinkle (Vinca minor) extract
Corn poppy (Papaver rhoeas) extract	Japanese angelica (Angelica acutiloba) extract, water	PEG-80 jojoba acid/alcohol
Comflower (Centaurea cyanus) extract	Japanese hawthorn (Crataegus cuneata) extract	PEG-120 jojoba acid/alcohol
Couch (Agropyron repens) grass		
Crataegus monogyna extract		
Crithmum marinum extract		

CAMPO Siddha Herbs Extracts

Jothi-Pul (Glow-grass) Siddha Extract for High content bio-available
Natural Radium for anti Karposi Sarcoma Skin Treatment.
Roma-Maram (Hairy Tree) Siddha Extract for ANTI-SENSE DNA
Topical applications for HIV+ Lymph-nodes
Siddha Extracts for post-Chemotherapy Skin-Damage Treatment

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Functions

Pfaffia paniculata extract	Wheat (Triticum vulgare) extract, protein	Phytic acid
Phellodendron amurense extract	Wheat (Triticum vulgare) germ extract	Potassium aspartate
Phospholipids	Wheat bran lipids	Sodium aspartate
Pimento (Pimenta officinalis) extract	White ginger (Hedychium coronarium) extract	Sodium dihydroxyethylglycinate
Pine (Pinus sylvestris) cone, needle extract	White nettle (Lamium album) extract	Sodium hexametaphosphate
Pineapple (Ananas sativus) extract	Wild agrimony (Potentilla anserina) extract	Tetrahydroxypropyl ethylenediamine
Plantain (Plantago major) extract	Wild cherry (Prunus serotina) bark extract	Tetrasodium EDTA
Pollen extract	Wild indigo (Baptisia tinctoria)	Tripotassium EDTA
Pongamol	Wild marjoram (Origanum vulgare) extract	Trisodium EDTA, HEDTA
Pona Cocos extract	Willow (Salix alba) bark extract, extract	
Pueraria lobata extract	Willow (Salix alba) leaf extract	
Queen of the meadow extract	Witch hazel (Hamamelis virginiana) extract	Cell stimulant
Quillaja saponaria extract	Yarrow (Achillea millefolium) extract	Aesculus chinensis extract
Quince (Pyrus cydonia) seed extract	Yeast (Saccharomyces cerevisiae) extract (Faex)	Artemisia apicea extract
Quinoa (Chenopodium quinoa) extract	Yucca vera extract	Astrocarpum muru, A. tucuma extract
Raspberry (Rubus) extract	Zanthoxylum piperitum extract	Baccharis gasipaes extract
Rauwolfia (Serpentina) extract	Zedoary (Curcuma zedoaria) oil	Borago sororia extract
Red clover		Calendula amurensis extract
Rehmannia chinensis extract		Chrysanthemum morifolium extract
Resharrow (Ononis spinosa) extract		Coccinea indica extract
Rhododendron chrysanthum extract		Comfrey (Symphytum officinale) leaf extract
Rhodophycea extract		Condurango extract
Rhubarb (Rheum palmatum) extract		Dandelion (Taraxacum officinale) extract
Rice (Oryza sativa) bran extract		Echites glauca extract
Rice fatty acid		Equisetum arvense extract
Rose (Rosa multiflora) extract		Eucalyptus (Eucalyptus globulus) extract
Rosemary (Rosmarinus officinalis) extract		Eupatorium fortunei extract
Rubia tinctorum extract		Euterpe precatoria extract
Safflower (Carthamus tinctorius) extract		Ficus racemosa extract
Sage (Salvia officinalis) extract, water		Glycoproteins
Samibucus nigra berry extract extract		Hierochloe odorata extract
Sandalwood (Santalum album) extract		Horse chestnut (Aesculus hippocastanum) extract
Sanguinaria canadensis extract		Inga edulis extract
Saponaria officinalis extract		Kadsura heteroclita extract
Sasa veitchii extract		Ligustrum lucidum extract
Saxifraga sarmentosa extract		Lysimachia loenensis-graecum extract
Scabiosa arvensis extract		Maunira flexosa extract
Scutellaria baicalensis root extract		Maximilliana regia extract
Silk extract		Metaleucus bracteata, M. symphyocarp extract
Silver fir (Abies pectinata) extract		Neriumium speciosum extract
Sisal (Agave rigida) extract		Ocimum basilicum extract, O. sanctum extract
Slippery elm extract		Paulownia imperialis extract
Soapberry (Sapindus mukorossi) extract		Pfaffia spp. extract
Sophora angustifolia extract		Pterocarpus marsupianus extract
Sophora flavescens root extract		Rubus thunbergii extract
Sophora japonica extract		Selinum spp. extract
Soybean (Glycine soja) extract		Shorea robusta extract
Soy (Glycine soja) germ extract, protein, sterol		Xanthoxylium bungeanum extract
Spearmint (Mentha vindis) extract oil		Cleansing
Spinach (Spinacia oleracea) extract		Birch (Betula alba) leaf extract
Spiraea ulmaria extract		Lemongrass (Cymbopogon schoenanthus) extract
Sunflower (Helianthus annuus) seed extract		Oat (Avena sativa) bran extract
Sweet almond (Prunus amygdalus dulcis) extract		Passion flower (Passiflora laurifolia) fruit extract
Sweet cherry (Prunus avium) extract		Witch hazel (Hamamelis virginiana) extract
Sweet cicely (Anthriscus cerefolium) extract		Yarrow (Achillea millefolium) extract
Sweet clover (Melilotus officinalis) extract		
Sweet violet (Viola odorata) extract		Conditioner
Swertia chirata extract		Acetamide MEA
Tea (Camellia sinensis) extract		6-(N-Acetylamo)-1-oxyhexyltrimonium chloride
Thistle (Chicus benedictus) extract		Acrylamidopropyltrimonium chloride/acrylamide copolymer
Thyme (Thymus vulgaris) extract		Adipic acid/dimethylaminohydroxypropyl diethylene triamine copolymer
Tomato (Solanum lycopersicum) extract		AMP-isostearoyl hydrolyzed wheat protein
Tormentil (Potentilla erecta) extract		Apricot (Prunus armeniaca) kernel oil
Tuberose (Polianthes tuberosa) extract		Behenalkonium chloride
Turmeric (Curcuma longa) extract		Behenamidopropyl dihydroxypropyl dimonium chloride
Valerian (Valeriana officinalis) extract		Behenamidopropyl ethyldimonium ethosulfate
Walnut (Juglans regia) extract, leaf extract		Behenamidopropyl PG-dimonium chloride
Water Lily (Nymphaea alba) root extract		
Watercress (Nasturtium officinale) extract		

CAMPO Siddha Herb Extracts
CAMPO Rainforest Herb Extracts & Oils
CAMPO Australasian Herbs & Tea Tree Extracts
CAMPO Chinese & Japanese Herb Extracts

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Functions

Behenamido propyl dimethylamine behenate	Hydrolyzed sweet almond protein	Polymethacrylamidopropyltrimonium chloride
Behenamine oxide	Hydrolyzed wheat protein/PVP copolymer	Polyoxyethylene dihydroxypropyl linoleammonium chloride
Behenyl PG-trimonium chloride	Hydrolyzed wheat protein polysiloxane polymer	Polyquaternium-2, -5, -6, -11, -16
Behenyl betaine	Hydroxyethyl hydroxyethyl dimonium chloride	Polyquaternium-17, -18, -24, -29, -44
Benzyltrimonium hydrolyzed collagen	Hydroxyproline	Potassium dimethicone copolyol panthenyl phosphate
Canolamidopropyl betaine	Hydroxypropyl chitosan	Potassium lauroyl collagen amino acids
Capramide DEA	Hydroxypropyl guar hydroxypropyltrimonium chloride	Potassium lauroyl hydrolyzed soy protein
Caprylic/capric/claunc triglyceride	Hydroxypropyl-bis-isostearyl amido propyltrimonium chloride	Potassium lauroyl wheat amino acids
Caprylic pyrrolidone	Hydroxypropyl bis-stearyltrimonium chloride	Potassium stearoyl hydrolyzed collagen
Cassia aunculata extract	Hydroxypropyltrimonium gelatin	PPG-5 lanolin alcohol ether
Cetamine oxide	Hydroxypropyltrimonium hydrolyzed keratin	PPG-9 diethylmonium chloride
Cetearyltrimonium chloride	H.b. silk	PPG-20 lanolin alcohol ether
Chitosan PCA	Hydroxypropyltrimonium hydrolyzed wheat protein	Proline
Citric acid	Isopropyl hydroxybutyramide dimethicone copolyol	Propylene glycol stearate
Cocamidopropyl dimethylamine, C.d. lactate, C.d. propionate	Isopropyl lanolate	PVP/dimethylconylacrylate/polycarbamyl/polylglycol ester
Cocamidopropyl dimethylamino hydroxypropyl hydrolyzed collagen	Isostearamido propyl betaine, L. dimethylamine	PVP/dimethylaminoethylmethacrylate copolymer
Cocamidopropyltrimonium hydroxypropyl hydrolyzed collagen	Isostearamido propyl dimethylamine gluconate	PVP/dimethylaminoethylmethacrylate/polycarbamyl/polylglycol ester
Cocamidopropyl ethyldimonium ethosulfate	Isostearamido propyl dimethylamine glycolate	PVP/hydrolyzed wheat protein copolymer
Cocamidopropyl PG-dimonium chloride, C.P.C. phosphate	Isostearamido propyl dimethylamine lactate	Quaternium-22, -26, -33, -61, -62, -70, -80
Coco-morpholine oxide	Isostearamido propyl ethyldimonium ethosulfate	Quaternium-76 hydrolyzed collagen
Cocooleamidopropyl betaine	Isostearamido propyl laurylacetrimonium chloride	Rapeseedamidopropyl benzyltrimonium chloride
Cocodimonium hydroxypropyl hydrolyzed hair keratin	Isostearamido propyl morpholine, L.m. lactate	Rapeseedamidopropyl epoxypropyl trimonium chloride
Cocodimonium hydroxypropyl hydrolyzed rice protein	Isostearamido propyl morpholine oxide	Rapeseedamidopropyl ethyldimonium ethosulfate
Cocodimonium hydroxypropyl hydrolyzed silk	Isostearamido propyl PG-dimonium chloride	Rice peptide
Cocodimonium hydroxypropyl hydrolyzed soy protein	Isostearaminopropyltrimonium chloride	Ricinoleamidopropyl-dimonium ethosulfate
Coconut alcohol	Isostearyl hydrolyzed animal protein	Ricinoleamidopropyl betaine
N-Cocoyl-(3-amidopropyl)-N,N-dimethyl-N-ethyl ammonium ethyl sulfate	Isostearylamido propyl dihydroxypropyl trimonium chloride	Ricinoleamidopropyl dimethylamine lactate
Collagen phthalate	Lactoglobulin	Ricinoleamidopropyl ethyldimonium ethosulfate
Dibehenyl diarachidyl trimonium chloride	Lauramidopropyl dimethylamine	Ricinoleamidopropyltrimonium chloride
Dibehenyltrimonium chloride	Lauramidopropyl PG-dimonium chloride	Silicone quaternium-3, -4
Diceretyltrimonium chloride	Lauramine oxide	Silk amino acids
Didecyldimonium chloride	Lauromanno PG-glycinate phosphate	Sodium/TEA-lauroyl collagen amino acids
Dihydroxyethyl cocamine oxide	Lauroyl hydrolyzed collagen, L.h. elastin	Sodium/TEA-lauroyl hydrolyzed keratin
Dihydroxyethyl dihydroxypropyl stearonium chloride	Lauroyl silk amino acids	Sodium/TEA-lauroyl keratin amino acids
Dihydroxyethyl tallow glycinate	Lauryl methyl gluceth-10 hydroxypropyl-dimonium chloride	Sodium citrate
Dihydroxyethyl tallowamine oxide	Lauryl phosphate, L. pyrrolidone	Sodium cocoyl hydrolyzed soy protein
Dilauryl acetyl dimonium chloride	Lauryltrimonium hydroxypropyl hydrolyzed collagen, keratin, soy protein	Sodium hydrogenated tallow dimethyl glycinate
Diloleamidopropyl dimethylamine	Linoleamidopropyl dimethylamine	Sodium lauroyl collagen, keratin amino acids
Dimethyl hydrogenated tallowamine	Milk amino acids	Sodium lauroyl wheat amino acids
Dimethyl lauramine, D.I. isosteareate	Milk protein (Lactis proteinum)	Sodium stearoamphoacetate
Dimethyl myristamine, soyamine, stearamine	Myristalkonium chloride	Soluble keratin, wheat protein
Dimethylamido propylamine dimerate	Myristamido propyl betaine, M. dimethylamine	Soyamide DEA
Disodium hydrogenated cottonseed glyceride sulfosuccinate	Myristimonium orotate	Soyamidopropyl benzyltrimonium chloride
Disodium laureth sulfosuccinate	Oat (Avena sativa) protein	Soyamidopropyl betaine, S. dimethylamine
Disodium lauroamphodiacetate	Oleamide	Soyamidopropyl cetyltrimonium ethosulfate
Distearyltrimonium chloride	Oleamidopropyl betaine, O. dimethylamine	Soyethyl morpholinium ethosulfate
Ethyl ester of hydrolyzed keratin	Oleamidopropyl dimethylamine hydrolyzed collagen	Soyetyltrimonium ethosulfate
N-Etylether-bis-1,4-(N-isostearyl amido propyl-N,N-dimethyl ammonium chlo	Oleamidopropylamine oxide	Stearamide MEA
Glutamic acid	Oleamine	Stearamidoethyl diethylamine, ethanolamine
Glyceryl collagenate	Oleamine oxide	Stearamidopropyl benzyl dimonium chloride
Glycine	Oleoyl sarcosine	Stearamidopropyl cetearyl dimonium tosylate
Guar hydroxypropyltrimonium chloride	Olevi betaine	Stearamidopropyl dimethylamine stearate
Henna (Lawsonia inermis) extract	Oleyl dimethylamido propyl ethonium ethosulfate	Stearamidopropyl ethyldimonium ethosulfate
Hydrogenated tallowamine oxide	Palmamido propyl betaine	Stearamidopropyl morpholine lactate
Hydrogenated tallowtrimonium chloride	Palmamido propyl dimethylamine	Stearamidopropyl PG-dimonium chloride phosphate
Hydrolyzed conchiorin protein	Palmamine, P. oxide	Stearamine oxide
Hydrolyzed egg protein	Panthenyl hydroxypropyl stearimonium chloride	Stearamonium hydroxypropyl hydrolyzed collagen, keratin
Hydrolyzed extensin	PEG-2 milk solids	Stearamonium panthenol
Hydrolyzed fibronectin	PEG-2 oleammonium chloride	Stearoyl amidoethyl diethylamine
Hydrolyzed fish protein	PEG-3 lauramine oxide	Stearamonium bromide
Hydrolyzed keratin	PEG-5 stearyl ammonium lactate	Stearyl dimethicone
Hydrolyzed lactalbumin	PEG-15 cocomonium chloride	Tallowamidopropyl dimethylamine
Hydrolyzed milk protein	PEG-15 cocopolyamine	Tetramethyl trihydroxy hexadecane
Hydrolyzed oats	PEG-15 tallowmonium chloride	TEA-cocoyl hydrolyzed collagen
Hydrolyzed reticulin	PEG-27	Trachea hydrolysate
Hydrolyzed soy protein	PEG-40	Tricetylmonium chloride
	PEG-85 lanolin	Tridecyl salicylate
	PEG-7000	Triethonium hydrolyzed collagen ethosulfate
	Polydimethicone copolyol	Wheat germamidopropyltrimonium chloride
		Wheat germamidopropyl dimethylamine lactate

Functions

<u>Wheat germamidopropyl ethyldimonium ethosulfate</u>	Disodium lauroamphodiacetate	TEA-PEG-3 cocamide sulfate
<u>Wheat peptide</u>	Disodium lauroamphodipropionate	Undecylenamidopropyl betaine
<u>Yeast powder, deproteinized</u>	Disodium lauryl sulfosuccinate	
<u>Coupling agent</u>	Disodium myristamido MEA-sulfosuccinate	Disinfectant
Acetyl monoethanolamine	Disodium nonoxynol-10 sulfosuccinate	Benzalkonium chloride
Burylocianoi	Disodium oleamido PEG-2 sulfosuccinate	Chlorophene
Myreth-3	Disodium PEG-4 cocamido MIPA-sulfosuccinate	Didecyldimonium chloride
Oleyl alcohol	Disodium ricinoleamido MEA-sulfosuccinate	Myristalkonium saccharinate
PPG-10 butanediol	Disodium (allylaminocapryl)propionate	Shikimate
PPG-10 cetyl ether	Dodecylbenzenesulfonic acid	Sodium capryloamphoacetate
PPG-10 oleyl ether	Dodecyl-6, -9	Tea tree (<i>Melaleuca alternifolia</i>) oil
PPG-15 stearyl ether	Isopropylamine dodecylbenzenesulfonate	p-Tertiaryphenol
PPG-22 butyl ether	Isostearamidopropyl betaine	
PPG-23 oleyl ether	Isosteareth-6 carboxylic acid	Dispersant
PPG-50 oleyl ether	Isostearamidopropionate	Alkylated polyvinylpyrrolidone
Trideceth-7 carboxylic acid	Isostearyl hydroxyethyl imidazoline	C20-40, C30-50, C40-60 alcohols
<u>Denaturant</u>	Lauramidopropylamine oxide	Castor (<i>Ricinus communis</i>) oil
Brucine sulfate	Laureth-11	Ceteareth-20
Denatonium benzoate, saccharide	Lauroamph PG-glycinate phosphate	Cetyl PPG-2 isodeceth-7 carboxylate
Nicotine sulfate	Lauryl glucoside, L. phosphate	Cholesteryl/behenyl/octyl/dodecyl lauroyl glutamate
Sucrose octaacetate	Magnesium lauryl sulfate, M. lauryl sulfate	Decaglycerol monodioleate
Thymol	Magnesium PEG-3 cocamide sulfate	Diisocetyl dodecanedioate
<u>Dental powder</u>	MEA-dodecylbenzenesulfonate	Diisostearyl adipate
Dicalcium phosphate	MEA-laureth sulfate	Dimethicone copolyol methyl ether
Silica	MEA-lauryl sulfate	Diocetylhexadecyl dimer dilinoleate
Sodium lauonofluorophosphate	MIPA-lauryl sulfate	Diocryldodecyl dodecanedioate
Stannous fluoride	Myristamine oxide	Ethyl hydroxymethyl oleyl oxazoline
<u>Deodorant</u>	Myristic acid	Glyceryl caprylate, G. caprylate/caprate
Abietic acid	Nonoxynol-10	Glyceryl diisostearate
Azadirachta indica extract	Oleaminoamphohydroxypropylsulfonate	Hydrogenated castor oil, H. lecithin
Chlorophyllin-copper complex	Oleth-12, -15	Hydrogenated tallow glycerides
Eugenia jambolana extract	Oleyl betaine	Isobutylene/MA copolymer
Farnesol	Palmitamidopropyl betaine	Isocetyl alcohol
Fermented vegetable	PEG-10 glyceryl stearate	Isopropyl C12-15-pareth-9-carboxylate
Mauritia flexosa extract	PEG-15 glyceryl stearate	Isostearyl neopentanoate
Salvia miltiorrhiza extract	PEG-25 glyceryl isostearate	Lanolin acid
Sodium aluminum chlorohydroxy lactate	Potassium cocoyl hydrolyzed collagen	Laureth-4, -6, -16
Spondias amara extract	Sodium caproamphoacetate	Melanin
Triethyl citrate	Sodium cocoamphopropionate	Nonoxynol-2, -18, -20, -30, -40
Zinc phenol sulfonate, Z. ricinoleate	Sodium cocomonoglyceride sulfate	Octoxynol-5, -10
<u>Depilatory</u>	Sodium cocoyl hydrolyzed soy protein	Octoxynol 16, 30, 40, 70
Barium sulfide	Sodium cocoyl isethionate	Ocrylodeceth-5
Beeswax, oxidized	Sodium C12-15 pareth-25 sulfate	Ocrylodecyl/dimethicone copolyol citrate
Calcium thioglycolate	Sodium C14-16 olefin sulfonate	Oleyl alcohol
L-cysteine HCL	Sodium C14-17 alkyl sesquifonate	PEG-5 castor oil, glyceryl sesquioleate
Potassium thioglycolate	Sodium deceth sulfate	PEG-6 beeswax
Sodium thioglycolate	Sodium dodecylbenzenesulfonate	PEG-8/SMDI copolymer
Thioglycerin	Sodium dodecylidiphenyl ether sulfonate	PEG-9 castor oil, oleate, stearate
<u>Detergent</u>	Sodium iodate	PEG-10 dioleate, stearamine
Ammonium laureth sulfate	Sodium laureth-2 sulfate	PEG-12 beeswax
Ammonium lauryl sulfate	Sodium laureth-3 sulfate	PEG-12 glyceryl dioleate, laurate
Capramide DEA	Sodium laureth-7 sulfate	PEG-15 castor oil
Cocamidopropyl dimethylamine lactate	Sodium laureth-12 sulfate	PEG-20 almond glycerides
Decyl glucoside	Sodium laureth-13-carboxylate	PEG-20 glyceryl isostearate
Decyltetradeceth-25	Sodium laureth sulfate	PEG-20 sorbitan triisostearate
DEA lauryl sulfate	Sodium laurimodipropionate	PEG-25 castor oil
Diamyl sodium sulfosuccinate	Sodium lauroamphopropionate	PEG-30 dipolyhydroxystearate
Dicyclohexyl sodium sulfosuccinate	Sodium lauroyl methyl alaninate	PEG-40 hydrogenated castor oil PCA isostearate
Diisobutyl sodium sulfosuccinate	Sodium lauryl phosphate, S.I. sulfate	PEG-60 shea butter glycerides
Disodium caproamphodiacetate	Sodium lauryl sulfonate	Polyoxamer 101, 122, 181, 182, 184
Disodium caproamphodipropionate	Sodium lauryl sulfonate	Polyglyceryl-2 sesquioleate
Disodium caprylomphodiacetate	Sodium laurimodipropionate	Polyglyceryl-3 diisostearate, oleate
Disodium caprylomphodipropionate	Sodium lauroamphopropionate	Polyglyceryl-5 distearate
Disodium cetearyl sulfosuccinate	Sodium lauroyl methyl alaninate	Polyglyceryl-6 mixed fatty acids
Disodium cocamido MEA-sulfosuccinate	Sodium lauryl sulfonate	Polyglyceryl-10 diisostearate, distearate
Disodium cocamido MIPA-sulfosuccinate	Sodium lauryl sulfate	Polyglyceryl-10 decaooleate
Disodium cocoamphodipropionate	Sodium myreth sulfate	Polyhydroxystearic acid
Disodium deceth-6 sulfosuccinate	Sodium myristyl sulfate	Polyisobutene 40, 80
Disodium decetyl sulfosuccinate	Sodium octyl sulfate, oleyl sulfate	Potassium polyacrylate
Disodium isoctetyl sulfosuccinate	Sodium POE alkyl ether acetate	PPG-3 PEG-6 oleyl ether
Disodium lauramido MEA-sulfosuccinate	Sodium trideceth-7 carboxylate	PPG-9 diethylmonium phosphate
Disodium lauramido PEG-2 sulfosuccinate	Sodium trideceth sulfate	PPG-12/SMDI Copolymer
Disodium laureth sulfosuccinate	Sodium tridecyl sulfate	PPG-15 stearyl ether
Disodium lauramido MEA-sulfosuccinate	Steareth-11, -30	PPG-25, PPG-40 diethylmonium chloride
Disodium lauramido PEG-2 sulfosuccinate	TEA-dodecylbenzenesulfonate	PPG-51/SMDI Copolymer
Disodium laureth sulfosuccinate	TEA-laureth sulfate	PVP/icosene copolymer
	TEA-lauryl sulfate	PVP/hexadecene copolymer
	TEA-palm kernel sarcosinate	

Functions

Rapeseed oil, ethoxylated high erucic acid	Cetyl stearyl octanoate	Dihydroabietyl behenate
Ricinoleyl alcohol	Chia (<i>Salvia hispanica</i>) oil	Dihydroxyethyl taallowamine oleate
Sodium ceteth-13-carboxylate	Cholestene esters	Dimobutyl adipate
Sodium lignosulfonate, S. polymethacrylate	Cholesterol	Dimocetyl adipate, dodecanedioate
Sodium poly(naphthalenesulfonate)	Cholesteryl/behenyl/octylundecyl lauroyl glutamate	Dimocetyl adipate
Sorbitan oleate	Cholesteryl hydroxystearate	Dimopropyl adipate, dimer dilinoleate
Steareth-10	Cholesteryl stearate	Dimopropyl behenate
Tricontanyl PVP	Choleth-24	Dimostearyl trimethylolpropane siloxy silicate
Trioxoleann PEG-6 esters	C 18-70 Isoparaffin	Dimostearyl adipate
Triocetylundecyl citrate	C10-18, C12-18 triglycerides	Dimostearyl dimer dilinoleate
Emollient	C12-15 linear alcohols, 2-ethylhexanoate	Dimostearyl fumurate, D. malate
Acetylated glycol stearate	Cocamidopropyl PG-dimonium chloride	Dilinoleic acid
Acetylated hydrogenated lanolin	Cocoa (<i>Theobroma cacao</i>) butter	Dimethicone
Acetylated hydrogenated lard glycide	Coco-caprylate/caprate	Dimethicone copolyol
Acetylated hydrogenated vegetable glyceride	Coco-rapeseedate	Dimethicone copolyol acetate, D.c. almondate
Acetylated lanolin, A.I. alcohol	Coconut (<i>Cocos nucifera</i>) oil	Dimethicone copolyol isostearate, D.c. lactate
Acetylated lard glycide	Cocoyl hydrolyzed soy protein	Dimethicone copolyol methyl ether
Acetylated monoglycerides	Collagen phthalate	Dimethicone copolyol phthalate
Acetylated palm kernel glycides	Colloidal oatmeal	Dimethicone propylethlenediamine behenate
Aleurites moluccana ethyl ester	Comfrey (<i>Symphytum officinale</i>) leaf extract	Dimethiconol stearate
Allantoin	Corn (<i>Zea mays</i>) oil	Dimethyl lauramine oleate
Aluminum/magnesium hydroxide stearate	Corn poppy (<i>Papaver rhoeas</i>) extract	Diocetyl adipate
AMP-isostearoyl hydrolyzed soy protein	Cottonseed (<i>Gossypium</i>) oil	Diocetyl dimer dilinoleate
Apricot (<i>Prunus armeniaca</i>) kernel oil	Cuttlefish extract	Diocrylcyclohexane
Arachidyl behenate	Cyclomethicone	Diocylidodecyl dimer dilinoleate
Argania spinosa oil	Deceth-4 phosphate	Diocylidodecyl dodecanedioate
Avocado (<i>Persea gratissima</i>) oil, unsaponifiables	Decyl oleate	Diocetyl malate, D. sebacate, succinate
Avocado oil ethyl ester	Decyltetradecanol	Dimethylerythritol fatty acid ester
Babassu (<i>Orbignya oleifera</i>) oil	Dialkylidimethylpolysiloxane	Dimethylerythritol hexacaprylate/hexacaprate
Barley isostearate, B. stearate	Dimethyl sebacate	Dimethylerythritol hexanhydroxystearate/isostearate
Behenamidopropyl dihydroxypropyl dimonium chloride	Dicapryl adipate	Disear, dimethylamine dilinoleate
Behenoxy dimethicone	Dicapryl ether, D. malate	Diridecyl adipate
Behenyl alcohol, B. behenate	Diethylene glycol diisooctanoate	Dog rose (<i>Rosa canina</i>) hips oil
Behenyl erucate, B. isostearate	Diethylene glycol dioctanoate	Egg (<i>Ovum</i>) yolk extract
Benzyl laurate	bis-Diglyceryl/caprylate/caprate/isostearate/hydroxystearate/adipate	Emu (<i>Dromiceius</i>) oil
Bladderwrack (<i>Fucus vesiculosus</i>) extract	bis-Diglyceryl/caprylate/caprate/isostearate/stearate/hydroxystearate/adipate	Eruçyl erucate
Borage (<i>Borago officinalis</i>) seed oil		Ethyl avocadate
Borageamidopropyl phosphatidyl PG-dimonium chloride		Ethylhexyl isopalmitate
Brain extract		
Brazil nut (<i>Bertholletia excelsa</i>) oil		
Butyl myristate, oleate, stearate		
Butyloctanol		
Butyloctyl oleate		
C12-13, C12-16, C14-15 alcohols		
C12-15 alcohols octanoate		
C12-15 alkyl benzoate		
di-C12-15 alkyl fumarate		
C12-15 alkyl lactate		
Camellia kissi oil		
Tea (<i>Camellia sinensis</i>) oil		
C10-30 cholesterol/lanosterol esters		
Canola oil		
Caprylic/capric triglyceride		
Caprylic/capric triglyceride PEG-4 esters		
Caprylic/capric/lauric triglyceride		
Caprylic/capric/linoleic triglyceride		
Caprylic/capric/oleic triglycerides		
Caprylic/capric/stearic triglyceride		
Caprylic/capric/succinic triglyceride		
Capsicum frutescens oleoresin		
Carrot (<i>Daucus carota sativa</i>) oil		
Cashew (<i>Anacardium occidentale</i>) nut oil		
Castor (<i>Ricinus communis</i>) oil		
Cetearyl behenate, C. candelillate		
Cetearyl isononanoate, C. octanoate		
Cetearyl palmitate, C. stearate		
Ceteth-10		
Cetostearyl stearate		
Cetyl C12-15 pareth-9 carboxylate		
Cetyl acetate, C. alcohol		
Cetyl esters, C. lactate		
Cetyl myristate, C. octanoate		
Cetyl oleate, C. palmitate		
Cetyl PPG-2 isodeceth-7 carboxylate		
Cetyl nonanoate, C. stearate		

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OUR 78TH YEAR



Functions

2-Ethylhexyl isostearate	Isononyl isononanoate	Octyldodecanol
Ethyl linoleate, E. myristate	Isopentylidol	Octyldodecyl behenate, O. benzoate
Ethyl myristate, E. myristate	Isopropyl avocadate	Octyldodecyl erucate, O. myristate
Ethyl oleate, E. oleate	Isopropyl C12-15-pareth-9-carboxylate	Octyldodecyl oleate, O. ricinoleate
Evening primrose (<i>Oenothera biennis</i>) extract, oil	Isopropyl isostearate	Octyldodecyl stearate
Glycereth-4,5-lactate	Isopropyl laurate, I. linoleate	bis-Octyldodecyl stearoyl dimer dilinoleate
Glycereth-5 lactate	Isopropyl myristate, I. palmitate	Octyldodecyl stearoyl stearate
Glycereth-7 benzoate	Isopropyl PPG-2-isodeceth-7 carboxylate	Oleamine oxide
Glycereth-7 diisononanoate	Isopropyl stearate	Oleic/palmitoleic/linoleic glycerides
Glycereth-7 triacetate	Isosorbide laurate	Oleic alconol
Glycereth-7 trioctanoate	Isostearic acid	Oleostearine
Glycereth-12 -26	Isostearyl alcohol	Oleyl alcohol, O. erucate, O. oleate
Glycerol tricaprylate/caprate	Isostearyl behenate, I. benzoate	Olive (<i>Olea europaea</i>) oil
Glyceryl adipate, G. dioleate	Isostearyl diglyceryl succinate	Orange (<i>Citrus aurantium dulcis</i>) peel wax
Glyceryl isostearate, G. lanolate	Isostearyl erucate, I. erucyl erucate	Orange roughy (<i>Hoplostethus atlanticus</i>) oil
Glyceryl linoleate, G. monopyroglutamate	Isostearyl isostearate, I. lactate	Palm (<i>Elaeis guineensis</i>) oil
Glyceryl myristate, G. oleate	Isostearyl malate, I. myristate	Palm kernel glycerides
Glyceryl ricinoleate	Isostearyl neopentanoate, palmitate	Palmitic acid
Glyceryl inacetyl hydroxystearate	Isostearyl stearoyl stearate	Panthenyl triacetate
Glyceryl inacetyl ricinoleate	Isostearylamidopropyl dihydroxypropyl dimonium chloride	Partially hydrogenated canola oil
Glycosaminoglycans	Isotridecyl isononanoate	Partially hydrogenated soybean oil
Glycosphingolipids	Isotridecyl myristate	Peach (<i>Prunus persica</i>) extract
Gold of Pleasure oil	Jojoba (<i>Buxus chinensis</i>) oil	Peanut (<i>Arachis hypogaea</i>) oil
Grape (<i>Vitis vinifera</i>) seed oil	Jojoba butter, J. esters	Pecan (<i>Carica illinoensis</i>) oil
Hazel (<i>Corylus avellana</i>) nut oil	Jojoba oil, synthetic	PEG-2 diisononanoate, P. dioctanoate
Helianthus annuus ethyl ester	Kukui (<i>Aleurites moluccana</i>) nut oil	PEG-2 milk solids
Hexadecyl isopalmitate	Lactamide DGA	PEG-4
Hexamethylidisiloxane	Laneth-10 acetate	PEG-4 diheptanoate, P. dilaurate
Hexyl laurate	Lanolin, L. acid	PEG-5 C8-12 alcohols citrate
Hexyldecanol	Lanolin alconol, L. oil	PEG-5 C14-18 alcohols citrate
Hexyldecyl stearate	Lanolin, ultra anhydrous	PEG-5 hydrogenated castor oil
Honey extract	Lanolin wax	PEG-5 hydrogenated castor oil trisostearate
Hybrid safflower (<i>Carthamus tinctorius</i>) oil	Lanosterol	PEG-6
Hybrid sunflower (<i>Helianthus annuus</i>) oil	Lard glyceride	PEG-6 capric/caprylic glycerides
Hydrogenated C6-14 olefin polymers	Laureth-2 -3	PEG-7 glyceryl cocoate
Hydrogenated castor oil	Laureth-2 acetate, L. benzoate	PEG-8
Hydrogenated castor oil laurate	Laureth-2-octanoate	PEG-8 diaurate, P. dioleate
Hydrogenated coconut oil	Lauric/palmiic/oleic triglyceride	PEG-8/SMDI copolymer
Hydrogenated cottonseed oil	Lauryl behenate, L. lactate	PEG-9 stearyl stearate
Hydrogenated lanolin	Lauryl phosphate	PEG-10 stearyl stearate
Hydrogenated lanolin, distilled	Laurylidimethylamine isostearate	PEG-12
Hydrogenated lecithin	Lesquerella fendleri oil	PEG-12 dioleate, P. palm kernel glycerides
Hydrogenated milk lipids	Linoleic acid	PEG-15 cocamidopropyl betaine
Hydrogenated minu oil	Macadamia ternifolia nut oil	PEG-18
Hydrogenated palm kernel glycerides	Maleated soybean oil	PEG-20
Hydrogenated palm oil	Mango (<i>Mangifera indica</i>) oil, seed oil	PEG-20 hydrogenated castor oil isostearate
Hydrogenated polyisobutene	Mango kernel oil	PEG-20 hydrogenated castor oil trisostearate
Hydrogenated soybean oil	Meadowfoam (<i>Limnanthes alba</i>) seed oil	PEG-20 hydrogenated lanolin
Hydrogenated starch hydrolysate	Menhaden (<i>Brevoortia tyrannus</i>) oil	PEG-24 hydrogenated lanolin
Hydrogenated tallow glyceride	Methyl acetyl ricinoleate	PEG-25 PABA, P. propylene glycol stearate
Hydrogenated tallow glyceride, lactate	Methyl gluceth-20	PEG-40 glyceryl laurate
Hydrogenated tallow oil	Methyl gluceth-20 benzoate, M. g. distearate	PEG-40 hydrogenated castor oil isostearate
Hydrogenated vegetable glycerides	Methyl hydroxystearate, M. ricinoleate	PEG-40 hydrogenated castor oil laurate
Hydrogenated vegetable oil	Microcrystalline wax	PEG-40 hydrogenated castor oil trisostearate
Hydrolyzed collagen	Mineral oil (<i>Paraffinum liquidum</i>)	PEG-40 jojoba oil
Hydrolyzed conchiorin protein	Mink oil	PEG-50 hydrogenated castor oil laurate
Hydrolyzed keratin	Musk rose (<i>Rosa moschata</i>) oil	PEG-50 hydrogenated castor oil trisostearate
Hydrolyzed mushroom (<i>Tricholoma matsutake</i>) extract	Myreth-3	PEG-60 shea butter glycerides
Hydrolyzed oat protein	Myreth-3 caprate, M. laurate	PEG-70 mango glycerides
Hydroxylated lanolin	Myreth-3 myristate, M. octanoate	PEG-75
Hydroxylated milk glycerides	Myristyl alcohol, M. lactate	PEG-75 lanolin, P. shea butter glycerides
Hydroxystearic acid	Myristyl myristate, M. octanoate	PEG-75 shea butter glycerides
Illipe butter	Myristyl propionate, M. stearate	PEG-150
Isobutyl palmitate, I. stearate	Neatsfoot oil	PEG/PPG-17/6 copolymer
Isocetyl behenate, I. octanoate	Neem (<i>Melia azadirachta</i>) seed oil	Pentaerythrityl dioleate
Isocetyl palmitate, I. salicylate	Neopentyl glycol dicaprate	Pentaerythrityl isostearate/caprate/caprylate/adipate
Isocetyl stearate	Neopentyl glycol dicaprate/dicaprylate	Pentaerythrityl stearate
Isodeceth-2 cocoate	Neopentyl glycol diisooctanoate	Pentaerythrityl stearate/caprate/caprylate/adipate
Isodecyl citrate, I. cocoate	Neopentyl glycol diocanoate	Pentaerythrityl tetraacrylate/tetracaprylate
Isodecyl isononanoate, I. laurate	Oat (<i>Avena sativa</i>) bran extract, extract, flour	Pentaerythrityl tetraisononanoate, P. tetraisostearate
Isodecyl neopentanoate	Ocacosanyl stearate	Pentaerythrityl tetraisostearate
Isodecyl octanoate, I. oleate	Octyl cocoate	Pentaerythrityl tetrapelargonate
Isodecyl stearate	Octyl hydroxystearate, O. isononanoate	Pentaerythrityl terestarate
Isododecane	Octyl neopentanoate, O. octanoate	Perfluorodecalin
Isoeicosane	Octyl oleate, O. palmitate	Perfluorooctylisopropyl ether
Isohexadecane	Octyl pelargonate, O. stearate	Petrolanum

Functions

Phytantriol	PPG-8/SMDI copolymer	Propylene glycol myristyl ether acetate
Pistachio (Pistacia vera) nut oil	PPG-9	Propylene glycol stearate, SE
Placental enzymes	PPG-9-butoeth-12	Pumpkin (Cucurbita pepo) seed oil
Pollen extract	PPG-9 butyl ether	Quinoa (Chenopodium quinoa) oil
Poloxamer 105 benzoate	PPG-10 butanediol, P. cetyl ether	Rapeseed (Brassica campestris) oil
Poloxamer 182 dibenzoate	PPG-10 methyl glucose ether	Rice (Oryza sativa) bran oil, bran wax
Polybutene	PPG-10 oleyl ether	Rice fatty acid
Polydecene	PPG-11 stearyl ether	Safflower (Carthamus tinctorius) oil
Polydimethylsiloxane copolyol	PPG-12-butoeth-16	Salmon (Salmo) egg extract
Polyethylene glycol	PPG-12-PEG-50 lanolin	Sesame (Sesamum indicum) oil
Polyglyceryl-2 diisostearate, P. tetraisostearate	PPG-12-PEG-65 lanolin oil	Shark liver oil
Polyglyceryl-2 trisostearate	PPG-12/SMDI Copolymer	Shea butter (Butyrospermum parkii)
Polyglyceryl-3 diisostearate, P. oleate	PPG-14 butyl ether	Shea butter (Butyrospermum parkii) extract
Polyglyceryl-3 stearate	PPG-15 butyl ether, P. stearvi ether	Shea butter, ethoxylated
Polyglyceryl-6 dioleate	PPG-15 stearyl ether benzoate	Shorea stenopetala butter
Polyglyceryl-10 decaoleate, P. decastearate	PPG-16 butyl ether	Silybum marianum ethyl ester
Polyglyceryl-10 tetraoleate	PPG-18 butyl ether	Sitostearyl acetate
Polyisobutene	PPG-20	Skin lipids
Polyisobutene/isoheptapentaconitate	PPG-20-butoeth-30	Slippery elm extract
Polyisobutene/isoctahexaconane	PPG-20 cetyl ether	Sodium C8-16 isoalkylsuccinyl lactoglobulin sulfonate
Polyisobutene/isopentacontaociane	PPG-24-glyceryl-14	Sodium carboxymethyl beta-glucan
Polyisoprene	PPG-26	Sodium cetyl-13-carboxylate
Polyoxyethylene polyoxypropylene glycol	PPG-27 glyceryl ether	Sodium dimethicone copolyol acetyl methyltaurate
Polyquaternium-1	PPG-29-butoeth-35	Sodium glyceryl oleate phosphate
Polyisoxane polyalkylene copolymer	PPG-30	Sodium hyaluronate, S. polymethacrylate
Polyisobutene 40	PPG-30 cetyl ether	Sorbeth-20
Potassium dimethicone copolyol phosphate	PPG-40 butyl ether	Sorbian isostearate, S. palmitate
PPG-2-butoeth-3	PPG-50 cetyl ether, P. oleyl ether	Sorbian sesquioleate, S. sesquistearate
PPG-2 lanolin alcohol ether	PPG-51/SMDI Copolymer	Sorbian trioleate
PPG-2 myristyl ether propionate	PPG-53 butyl ether	Soybean (Glycine soja) oil
PPG-3 hydrogenated castor oil	Propylene glycol cetyl-3 acetate	Spermaceti
PPG-3 myristyl ether	Propylene glycol dicaprylate	Sphingolipids
PPG-5-butoeth-7	Propylene glycol dicaprylate/dicaprate	Squaiene
PPG-5-laureth-5	Propylene glycol diisostearate, P.g. diocanoate	Stearamidopropyl cetyltrimonium tosylate
PPG-5 butyl ether	Propylene glycol dioleostearate	Steareth-4 stearate
PPG-5 lanolin wax	Propylene glycol isoocteith-3 acetate	Stearyl acid, S. hydrazide
PPG-5 pentaerythrityl ether	Propylene glycol isostearate, P.g. laurate	Stearoxy dimethicone
PPG-7-butoeth-10	Propylene glycol myristate	

ANIMAL OR VEGETABLE?

New V-Series Cerasynt[®] emulsifiers give you the choice

ISP Van Dyk has added vegetable-based Cerasynt[®] derivatives to their outstanding emulsifier line. Cerasynt SD-V and IP-V provide the same excellent performance as the original animal-derived products. They are ideal for use as secondary emulsifiers, stabilizers and opacifiers in a wide variety of cosmetic creams and lotions. For information, call **201-450-7724**.



VAN DYK
a subsidiary of International Specialty Products

For samples, call the ISP Sample Center at 1-800-243-6788. To place an order, call ISP Customer & Sales Service at 1-800-622-4423.

Functions

Stearoxydimethicone/dimethicone copolymer	Calcium stearate	N-Dodecyi-N,N-dimethyl-N-(dodecyl acetate) ammonium chloride
Stearyl behenate, S. benzoate	Calcium stearoyl lactylate	Dodecyphenol-ethylene oxide condensate
Stearyl dimethicone, S. erucate	Capramide DEA	Egg (Ovum) yolk extract
Stearyl heptanoate, S. propionate	Caprylic/capric acid	Emulsifying wax NF
Stearyl stearate	Caprylic/capric glycerides	Ethoxylated fatty alcohol
Stearyl stearoyl stearate	Castor oil, ethoxylated	N-Ethylene-bis-1-(N-isostearylamidoethyl-N,N-dimethyl ammonium chlo
Sucrose cocotate	Cetalkonium chloride	Ethyl hexanediol
Sunflower (Helianthus annuus) seed oil	Ceteareth-2 -4 -5 -6	Eugenia gracilis polysaccharide
Sweet almond (Prunus amygdalus dulcis) oil	Ceteareth-2 phosphate	Glycereth-26 phosphate
Sweet cherry (Prunus avium) pit oil	Ceteareth-5 phosphate	Glyceryl caprylate, G. caprylate/caprate
Synthetic jojoba oil	Ceteareth-8 -10 -11 -12	Glyceryl caprate/lactate/linoleate/oleate
Synthetic wax	Ceteareth-10 phosphate	Glyceryl caprate, G. dilaurate
Tallow	Ceteareth-15 -17 -20 -25	Glyceryl dilaurate, G. dioleate
Tetradecycleyicosyl stearate	Ceteareth-27 -29 -30 -34	Glyceryl dilaurate, G. hydroxystearate
Tocopheryl acetate	Cetearyl alcohol	Glyceryl isostearate, G. lanolate
Tricaprin	Cetearyl glucoside	Glyceryl laurate, G. linoleate
Tricaprylin	Ceteth-2 -4 -6 -10 -12 -13	Glyceryl mono-di-tri-caprylate
Tricaprylyl citrate	Ceteth-16 -20 -25 -30 -33	Glyceryl myristate, G. oleate
Tricholoma matsutake extract	Cetethyldimonium bromide	Glyceryl palmitate, G. ricinoleate
Tridecyl behenate, T. cocotate	Cetrimonium chloride	Glyceryl ricinoleate SE
Tridecyl erucate, T. neopentanoate	Cetyl dimethicone copolyol	Glyceryl stearate, G. stearate citrate
Tridecyl octanoate, T. stearate	Cetyl phosphate	Glyceryl stearate lactate
Tridecyl stearoyl stearate	Cholesterol	Glyceryl stearate SE
Tridecyl trimellitate	Choleth-10 -15 -24	Glyceryl undecylenate
Trihexyldecyl citrate	Cocamide DEA, C. MEA	Glycol distearate, G. oleate
Triisocetyl citrate	Cocamidopropyl dimethylamine	Glycol palmitate, G. stearate
Triisostearin	Cocamidopropyl PG-dimonium chloride phosphate	Glycol stearate SE
Triisostearyl citrate	Cocamine	Glycolamide stearate
Trilaurin	Coceth-7 carboxylic acid	Glycosphingolipids
Trilinolein	Coconut acid	Hydrogenated coco-glycerides
Trimethylolpropane triacrylate/tricaprate	Copper protein complex	Hydrogenated cottonseed glyceride
Trimethylolpropane triacooate	Cottonseed glyceride	Hydrogenated lanolin
Trimethylolpropane tri laurate	C12-13 pareth-3 -4 -9 -23	Hydrogenated lecithin
Trimyristin	C16-18 pareth-3 -5.5 -13 -19	Hydrogenated palm oil
Trioctanoin	Cyclodextrin	Hydrogenated soy glyceride
Trioctyldodecyl citrate	Decaglycerol monodioleate	Hydrogenated tallow glycerides
Triolein	DEA-ceteareth-2-phosphate	Hydrogenated tallow glycerides citrate
Triplumim	DEA-cetyl phosphate	Hydroxycetyl phosphate
Tripropylene glycol citrate	DEA-cyclocarboxypropylate	Hydroxylated lanolin
Tristearin	DEA-oleth-3 phosphate	Hydroxylated lecithin
Triundecanoin	DEA-oleth-5-phosphate	Hydroxystearosanyl hydroxystearate
Vegetable oil	DEA-oleth-10 phosphate	Hydroxypropyl-bis-
Walnut (Juglans regia) oil	DEA-oleth-20-phosphate	isostearamidopropylidimonium chlonde
Wheat (Triticum vulgare) germ oil	Diceteareth-10 phosphoric acid	isostearath-8 stearate
Emulsifier	Diethanolamine	isoceteth-10 stearate
Acetylated hydrogenated lard glyceride	Diethylaminoethyl stearate	isoceteth-20
Acetylated hydrogenated vegetable glyceride	Diglyceryl stearate malate	Isocetyl alcohol
Acetylated monoglycerides	Dihydrocholeth-15 -20 -30	Isoaureth-6
Acrylates/C10-C30 alkyl acrylate crosspolymer	Dihydrogenated tallow phthalic acid amide	Isostearamidopropyl dimethylamine glucosate
Acrylates/vinyl isodecanoate crosspolymer	Dilauryl acetyl dimonium chloride	Isostearamidopropyl dimethylamine glycolate
Acrylic acid/acrylonitrile copolymer	Dilinoleamidopropyl dimethylamine dimethicone copolyol phosphate	Isostearamidopropyl laurylacetidimonium chloride
2-Aminobutanol	Dilinoleic acid	Isostearath-2 -3 -10 -12 -20 -22 -50
Ammonium acrylates/acrylonitrile copolymer	Dimethicone copolyol almondate	Isostearath-2-octanoate
Arachidyl alcohol	Dimethicone copolyol isostearate	Isostearath-10 stearate
Beeswax	Dimethicone copolyol laurate	Isostearic acid
Behenamidopropyl dihydroxypropyl dimonium chloride	Dimethicone copolyol methyl ether	Isostearyl diglyceryl succinate
Beheneth-5 -10 -20 -30	Dimethicone copolyol olivate	Isostearylamidopropyl dihydroxypropyl dimonium chloride
Behenic acid	Dimethicone copolyol phthalate	Karaya (Sterculia urens) gum
Behenyl betaine	Dipalmitoylethyl hydroxyethylmonium methosulfate	Laneth-5 -10 -15 -16 -20 -40
Borageamidopropyl phosphatidyl PG-dimonium chloride	Propylene glycol	Laneth-10 acetate
Butyloctanol	Disodium hydrogenated cottonseed glyceride sulfosuccinate	Lanolin
C12-20 acid PEG-8 ester	Disodium ricinoleamido MEA-sulfosuccinate	Lanolin alcohol
C18-36 acid	Disodium stearyl sulfosuccinate	Lanolin, ultra anhydrous
Calcium dodecylbenzene sulfonate	Disodium sulfosuccinamide	Lanolin wax
Calcium protein complex	Distearyl phthalic acid amide	Lauramide DEA, L. MEA

3 BETTER IDEAS.



1 BETTER SOURCE.

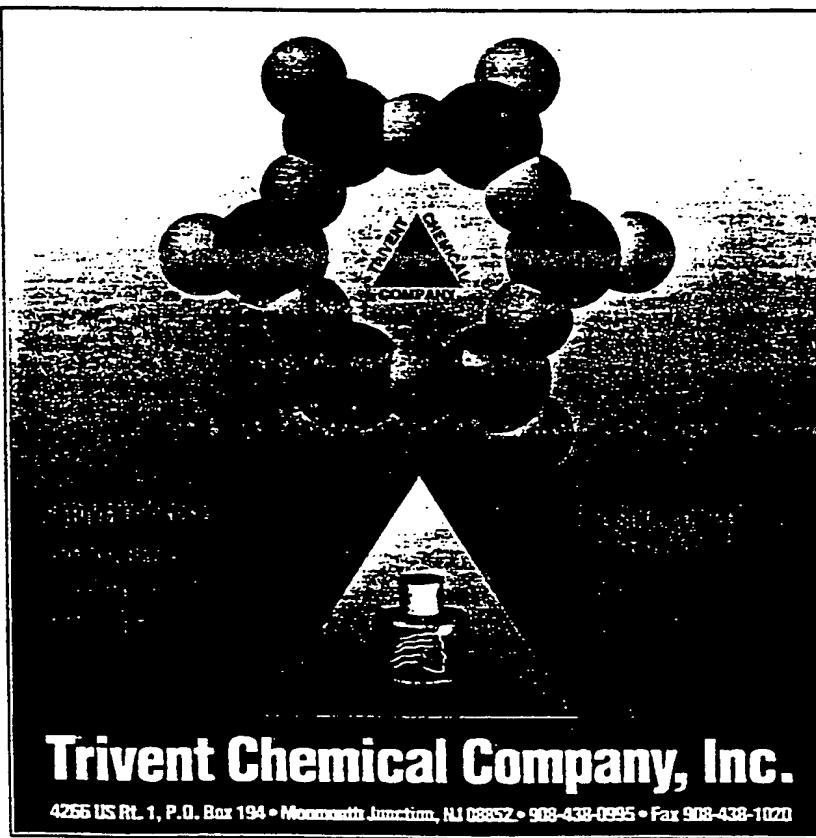


Functions

Lauramidopropyl dimethylamine	PEG-5 laurate, P. oleamine	PEG-20 lanolin, P. laurate
Lauramidopropyl PG-dimonium chloride	PEG-5 soy sterol, P. soyamine	PEG-20 oleate
Laureth-1 -2 -3 → -5	PEG-5 stearamine, P. stearate	PEG-20 methyl glucose sesquistearate
Laureth-2-octanoate	PEG-5 tallow amine	PEG-20 sorbitan beeswax
Laureth-3 phosphate	PEG-6 capric/caprylic glycerides	PEG-20 sorbitan isostearate
Laureth-4 carboxylic acid	PEG-6 cocamide	PEG-20 sorbitan trisostearate
Laureth-5 carboxylic acid	PEG-6 C12-14 ether	PEG-20 sorbitan trioleate
Laureth-6 -7 -9 -11 -12	PEG-6 dilaurate, P. dioleate	PEG-20 stearate, P. tallow amine
Laureth-11 carboxylic acid	PEG-6 distearate, P. isostearate	PEG-23 oleate, P. stearate
Laureth-16 -20 -23 -25 -30	PEG-6 lauramide, P. laurate	PEG-24 hydrogenated lanolin
Lauryl PCA	PEG-6 oleate, P. palmitate	PEG-25 castor oil
Laurylmethicone copolyol	PEG-6 sorbitan beeswax	PEG-25 phytosterol
Lecithin	PEG-6 sorbitan laurate	PEG-25 propylene glycol stearate
Linoleinamidopropyl PG-dimonium chloride	PEG-6 sorbitan oleate	PEG-25 soy sterol, P. stearate
phosphate	PEG-6 sorbitan stearate	PEG-29 castor oil
Lithium stearate	PEG-6 stearate	PEG-30 castor oil
Magnesium sulfate hepta-hydrate	PEG-6-32	PEG-30 dipolyhydroxystearate
Maleated soybean oil	PEG-6-32 stearate	PEG-30 glycetyl cocoate
Methoxy PEG-17-dodecyl glycol copolymer	PEG-7 glycetyl cocoate	PEG-30 glycetyl isostearate
Methyl glucose-20 distearate	PEG-7 hydrogenated castor oil	PEG-30 glycetyl laurate
Methyl glucose dioleate, M. g. sesquistearate	PEG-7 oleate	PEG-30 glycetyl oleate
Methyl glucose sesquistearate	PEG-7.5 tallowamine	PEG-30 glycetyl stearate
MEA-laureth sulfate	PEG-8	PEG-30 hydrogenated castor oil
Myreth-3 → -7	PEG-8 beeswax, P. castor oil	PEG-30 lanolin
Myreth-3 myristate	PEG-8 C12-14 ether	PEG-30 sorbitan tetraoleate
Myristamidopropyl dimethylamine	PEG-8 dilaurate, P. dioleate	PEG-32 dilaurate, P. dioleate
Nonoxynol-1 -2 -4 -5 -6 -7	PEG-8 distearate	PEG-32 distearate, P. laurate
Nonoxynol-8 -9 -10 -11 -12 -13	PEG-8 glycetyl laurate	PEG-32 oleate, P. stearate
Nonoxynol-14 -15 -18 -20 -30 -40 -50	PEG-8 laurate, P. oleate	PEG-33 castor oil
Nonyl nonoxynol-5 -10	PEG-8. P. tallate	PEG-35 castor oil, P. stearate
Oat (Avena sativa) flour	PEG-9 castor oil	PEG-40 castor oil
Octoxynol-1 -3 -5 -8 -10	PEG-9 diisostearate	PEG-40 glycetyl isostearate
Octoxynol-16, 30, 40	PEG-9 dioleate, P. distearate	PEG-40 glycetyl laurate
2-Octyl dodecyl alcohol	PEG-9 laurate, P. oleate	PEG-40 glycetyl trisostearate
Octyldodecanol	PEG-9 stearate	PEG-40 hydrogenated castor oil
Octyldodeceth-20 -25	PEG-10 castor oil, P. cocamine	PEG-40 hydrogenated castor oil PCA isostearate
Oleamide DEA	PEG-10 coconut oil esters	PEG-40 sorbitan diisostearate
Oleamidopropyl dimethylamine	PEG-10 C12-18 alcohols	PEG-40 sorbitan lanolate
Oleamine oxide	PEG-10 dioleate	PEG-40 sorbitan tetraoleate
Oleic acid	PEG-10 glycetyl isostearate	PEG-40 stearate
Oleth-2 -3 → -5 -6 -7 -8 -9	PEG-10 hydrogenated castor oil	PEG-40/dodecyl glycol copolymer
Oleth-10 -12 -15 -20 -23	PEG-10 hydrogenated castor oil triisostearate	PEG-42 babassu glycerides
Oleth-25 -30 -40 -50	PEG-10 laurate	PEG-44 sorbitan laurate
Oleth 13	PEG-10 polyglyceryl-2 laurate	PEG-45 palm kernel glycerides
Oleth-2 phosphate	PEG-10 sorbitan laurate	PEG-45 safflower glycerides
Oleth-3 phosphate	PEG-10 soy sterol, P. stearamine	PEG-50 lanolin, P. stearamine
Oleth-5 phosphate	PEG-10 stearate	PEG-50 stearate
Oleth-10 phosphate	PEG-11 babassu glycerides	PEG-60 almond glycerides
Oleth-20 phosphate	PEG-11 castor oil	PEG-60 castor oil
Palm acid	PEG-12 dilaurate, P. dioleate	PEG-60 corn glycerides
Palmitamidopropyl dimethylamine	PEG-12 distearate	PEG-60 glycetyl trisostearate
Palmitic acid	PEG-12 glycetyl dioleate	PEG-60 hydrogenated castor oil
PEG-2 cocamine, P. distearate	PEG-12 laurate, P. oleate	PEG-60 hydrogenated castor oil isostearate
PEG-2 hydrogenated tallow amine	PEG-12 stearate, P. tallate	PEG-60 hydrogenated castor oil trisostearate
PEG-2 laurate, P. laurate SE	PEG-14 avocado glycerides	PEG-60 shea butter glycerides
PEG-2 oleamine, P. oleate	PEG-15 castor oil	PEG-60 sorbitan tetraoleate
PEG-2 soyamine, P. stearamine	PEG-15 cocamine	PEG-70 mango glycerides
PEG-2 stearate, P. stearate SE	PEG-15 glycetyl isostearate	PEG-75
PEG-3 cocamide	PEG-15 glycetyl laurate	PEG-75 castor oil, P. dilaurate
PEG-3 C12-C18 alcohols	PEG-15 glycetyl ricinoleate	PEG-75 dioleate, P. distearate
PEG-3 glycetyl isostearate	PEG-15 oleamine, P. oleate	PEG-75 lanolin, P. laurate
PEG-3 glycetyl triisostearate	PEG-15 P. stearamine	PEG-75 oleate
PEG-3 glycetyl tristearate	PEG-15 tallow amine	PEG-75 shea butter glycerides
PEG-3 laurate, P. sorbitan oleate	PEG-15 tallow polyamine	PEG-75 stearate
PEG-3 stearate	PEG-16	PEG-80 sorbitan laurate
PEG-4 dioleate, P. diisostearate	PEG-16 hydrogenated castor oil	PEG-90 stearate
PEG-4 dilaurate, P. distearate	PEG-16 soy sterol	PEG-100 castor oil
PEG-4 glycetyl distearate	PEG-18 stearate	PEG-100 hydrogenated castor oil
PEG-4 laurate, P. oleate	PEG-20 almond glycerides	PEG-100 lanolin, P. stearate
PEG-4 stearate	PEG-20 castor oil, P. dilaurate	PEG-120 distearate
PEG-4 stearyl stearate	PEG-20 dioleate, P. distearate	PEG-150 dilaurate, P. dioleate
PEG-4 tallate	PEG-20 glycetyl laurate	PEG-150 distearate, P. lanolin
PEG-5 castor oil, P. cocamine	PEG-20 glycetyl oleate	PEG-150 laurate, P. oleate
PEG-5 C12-C18 alcohols	PEG-20 glycetyl stearate	PEG-150 stearate
PEG-5 glycetyl isostearate	PEG-20 glycetyl triisostearate	PEG-200 castor oil
PEG-5 glycetyl sesquistearate	PEG-20 glycetyl tristearate	PEG-200 glyceryl stearate
PEG-5 glycetyl stearate	PEG-20 hydrogenated castor oil	PEG-200 hydrogenated castor oil
PEG-5 glycetyl trisostearate	PEG-20 hydrogenated lanolin	

Functions

PEG-200 laurate, P. oleate	Sodium C12-15 pareth-15 sulfonate	Tallowamidopropyl dimethylamine
PEG-400 laurate	Sodium isostearyl lactylate	Talloweth-6
Phosphate esters	Sodium laureth-17 carboxylate	Tetrasodium dicarboxyethyl stearyl sulfosuccinamide
Phosphated amine oxides	Sodium lauroyl lactylate	TEA-acrylates/acrylonitrile copolymer
Phospholipids	Sodium lauryl sulfate	Tissue extract
Poloxamer 101, 105, 122, 123, 124	Sodium nonoxynol-6 phosphate	Tricerateth-4 phosphate
Poloxamer 181, 182, 184, 185, 235, 237	Sodium octyl sulfate	Trideceth-3, -5, -6, -7, -8
Poloxamer 238, 334, 338, 407	Sodium oleate	Trideceth-9, -10, -12, -15
Polyglyceryl-2 oleate	Sodium oleyl sulfate	Tridecyl ethoxylate
Polyglyceryl-2 polyhydroxystearate	Sodium phosphate	Triethanolamine
Polyglyceryl-2 sesquistearate	Sodium stearoyl lactylate	Trilaureth-4 phosphate
Polyglyceryl-2 stearate	Sorbeth-20	Triolein
Polyglyceryl-2-PEG-4-disteareate	Sorbitan isostearate, S. laurate	Trisodium HEDTA
Polyglyceryl-2-PEG-4-stearate	Sorbitan oleate, S. palmitate	Tristearin
Polyglyceryl-3 diisostearate, P. dioleate	Sorbitan sesquistearate	
Polyglyceryl-3 distearate	Sorbitan sesquioleate, S. sesquistearate	Enzyme
Polyglyceryl-3 methylglucose distearate	Sorbitan stearate, S. trisostearate	Fermented vegetable
Polyglyceryl-3 oleate, P. polyricinoleate	Sorbitan trioleate, S. tristearate	Ganoderma lucidum oil
Polyglyceryl-3 stearate	Soyamidopropyl dimethylamine	Lipase
Polyglyceryl-4 oleate, P. stearate	Soyamine	Papain
Polyglyceryl-6 dioleate, P. distearate	Stearamide DEA	Soy (Glycine soja) protein
Polyglyceryl-6 laurate, P. myristate	Stearamide DIBA-stearate	Superoxide dismutase
Polyglyceryl-6 oleate, P. polyricinoleate	Stearamidoethyl diethylamine	
Polyglyceryl-6 stearate	Stearamidopropyl dimethylamine lactate	Essential oil
Polyglyceryl-8 oleate	Stearamidopropyl PG-dimonium chloride phosphate	Aesculus chinensis extract
Polyglyceryl-10 decanoate	Stearamine	Artemisia apiacea extract
Polyglyceryl-10 diisostearate	Stearamine oxide	Brassica rapa-depressa extract
Polyglyceryl-10 dioleate, P. dipalmitate	Steareth-2, -4, -6, -7, -10, -11, -13	Caraway (Carum carvi) oil
Polyglyceryl-10 distearate, P. isostearate	Steareth-2 phosphate	Cardamon (Elettaria cardamomum) oil
Polyglyceryl-10 laurate, P. linoleate	Steareth-15, -20, -21, -30, -100	Clove (Eugenia caryophyllus) oil
Polyglyceryl-10 mixed fatty acids	Stearic acid	Eclipta alba extract
Polyglyceryl-10 myristate	Sucrose cocoate, S. distearate	Eucalyptus globulus oil
Polyglyceryl-10 oleate	Sucrose stearate	Euphorotium fortunei extract
Polyglyceryl-10 pentastearate	Synthetic beeswax	Euterpe precatoria extract
Polyglyceryl-10 stearate	Tallow glyceride, acetylated hydrogenated	Hierochloe odorata extract
Polyglyceryl-10 tristearate	Tallowamide DEA	Kadsura heterophylla extract
Polyoxyethylene polyoxypropylene glycol		
Poliquaternium-5, -11		
Polysorbate 20, 21, 30, 60, 61		
Polysorbate 65, 80, 91, 95		
Potassium alginate, P. cetyl phosphate		
Potassium laurate, P. myristate		
Potassium tallowate		
PPG-1-PEG-9 lauryl glycol ether		
PPG-2-ceteareth-9		
PPG-3 isosteareth-11		
PPG-3 PEG-6 oleyl ether		
PPG-5-buteith-7		
PPG-5-ceteth-20		
PPG-5-ceteth-10 phosphate		
PPG-8 oleate		
PPG-10 cetyl ether phosphate		
PPG-12-PEG-50 lauolin		
PPG-15 stearyl ether		
PPG-24-buteith-27		
PPG-25 laureth-25		
PPG-26-buteith-26		
PPG-26 oleate		
PPG-36 oleate		
Propylene glycol alginate, P.g. dioleate		
Propylene glycol hydroxystearate		
Propylene glycol laurate, P.g. ricinoleate		
Propylene glycol ricinoleate SE		
Propylene glycol stearate		
Propylene glycol stearate, SE		
Quaternium-33		
Rapeseedamidopropyl ethyldimonium ethosulfate		
Rice (Oryza sativa) bran wax		
Ricinoleamide DEA		
Ricinoleic acid		
Saponins		
Selenium protein complex		
Silicone quaternium-8, -6		
Sodium acrylates/vinyl isodecanoate crosspolymer		
Sodium caproyl lactylate		
Sodium carboxym		
Sodium cetyl sulfate		



Functions

Ligustrum lucidum extract	PVM/MA decadiene crosspolymer	Lauramidopropyl betaine
Lysimachia foenum-graecum extract	PVP/Dimethiconylacrylate/polycarbamyl/ polyglycol ester	Lauryl betaine
Meialeuca bracteata extract	PVP/dimethylaminoethylmethacrylate copolymer	Myristamidopropyl dimethylamine dimethicone copolyol phosphate
Meialeuca hypercifolia extract	PVP/dimethylaminoethylmethacrylate/ polycarbamyl/polyglycol ester	Myristamine oxide
Meialeuca syringiavaro extract	PVP/eicosene copolymer	Ocydodecyl benzoate
Melaleuca uncinata extract	PVP/hexadecene copolymer	Oleamide DEA, O. MIPA
Melaleuca wilsonii extract	PVP/hydrolyzed wheat protein copolymer	Oleyl betaine
Nasturtium sinensis extract	Rice peptide	Palm kernelamide DEA
Nelumbium speciosum extract	Sericin	PEG-3 lauramine oxide
Paulownia impensilis extract	Shea butter (<i>Butyrospermum parkii</i>)	PPG-15 stearyl ether benzoate
Rosemary (<i>Rosmarinus officinalis</i>) oil	Shellac	PEG-7000
Selinum spp. extract	Sodium C12-15 pareth-7 sulfonate	Sodium cocoamphoacetate
Trichomonas japonica extract	Sodium hyaluronate	Sodium cocoyl isethionate
Withania somnififerum extract	Soluble collagen	Sodium laureth sulfate
Yuzu oil	Soluble keratin	Sodium lauroyl wheat amino acids
Ziziphus jujuba extract	Soluble wheat protein	Sodium octoxynol-2 ethane sulfonate
Exfoliant	TEA-acrylates/acrylonitrogens copolymer	Soyamidopropyl betaine
Apricot (<i>Prunus armeniaca</i>) kernel powder	Tosylamide/epoxy resin	Tallowamide MEA
Glycolic acid	Trictonanyi PVP	Foam stabilizer
Jojoba (<i>Buxus chinensis</i>) seed powder	Triethonium hydrolyzed collagen ethosulfate	Babassuamidopropylamine oxide
Lactic acid	Wheat peptide	Behenamine oxide
Papain		Caprylyl pyrrolidone
PEG 11-Avocado Glycerides		Cetamine oxide
Willow (<i>Salix alba</i>) bark extract		Cocamide DEA, C. MEA, C. MIPA
Fiber		Cocamidopropyl betaine
Corn (<i>Zea mays</i>) cob powder		Cocamidopropyl hydroxysultaine
Nylon-66		Cocamidopropyl lauryl ether
Oat (<i>Avena sativa</i>) bran, meal		Cocamidopropylamine oxide
Rayon		Cocamine oxide
Film former		Dihydroxyethyl C12-15 alkoxypropylamine oxide
Acetylated lanolin		Dihydroxyethyl cocamine oxide
Acrylates/hydroxyesters acrylates copolymer		Dihydroxyethyl tallowamine oxide
Acrylates/octylarylamide copolymer		Erucamidopropyl hydroxysultaine
Acrylates copolymer		Hydroxypropyl methylcellulose
Alkylated polyvinylpyrrolidone		Isostearamide DEA
Ammonium acrylates/acrylonitrogens copolymer		Lauramide DEA, L. MEA
Betaglucan		Lauramidopropylamine oxide
Bladderwrack (<i>Fucus vesiculosus</i>) extract		Lauramine oxide
Carboxymethylchitosan		Laureth-10
N,O-Carboxymethylchitosonium		Laureic-linoleic DEA
Chitosan lactate		Lauroyl-linoleoyl diethanolamide
Collagen		Lauroyl-myristoyl diethanolamide
Collagen phthalate		Lauryl pyrrolidone
Colloidal oatmeal		Linoleamide MEA
Desamido collagen		Myristamide DEA, M. MEA
Diisostearoyl trimethylolpropane siloxy silicate		Oleamide MEA
DMHF		Palmamide MEA
Ethyli ester of hydrolyzed silk		PEG-3 lauramide
Ethylcellulose		PEG-4 oleamide
Geilan gum		Ricinoleamide MEA
Glycerin/diethylene glycol/adipate crosspolymer		Sesamide DEA
High beta-glucan barley flour		Wheat germamide DEA
Hydrolyzed collagen		Foamer
Hydrolyzed keratin		Ammonium laureth sulfate
Hydrolyzed oat protein		Ammonium laureth-5 sulfate
Hydrolyzed pea protein		Ammonium laureth-12 sulfate
Hydrolyzed reeuwin		Ammonium lauryl sulfate, A. I. sulfosuccinate
Hydrolyzed RNA		Ammonium myreth sulfate
Hydrolyzed silk		Ammonium nonoxynol 4 sulfate
Hydrolyzed soy protein		Capryl caprylylglucoside
Hydrolyzed wheat protein		Cetyl betaine
Hydrolyzed wheat protein/dimethicone copolyol phosphate copolymer		Cocamide
Hydrolyzed wheat protein/PVP copolymer		Cocamidopropyl dimethylamine
Hydroxypropylcellulose		Cocamidopropyl dimethylamine lactate
Hydroxypropyltrimonium gelatin		DEA-laureth sulfate
Jojoba (<i>Buxus chinensis</i>) oil		DEA lauryl sulfate
Lactoglobulin		Decyl glucoside
Myristoyl hydrolyzed collagen		Disodium caproamphodiacetate
Nitrocellulose		Disodium caproamphodipropionate
Oat (<i>Avena sativa</i>) extract, protein		Disodium caproamphodiacetate
Polyethylene, ionomer		Disodium caproamphodipropionate
Polyquaternium-0, -7, -11, -22, -39		Disodium lauroamphodiacetate
Polyvinyl acetate, P. alcohol		Disodium lauroamphodipropionate
Propylene		Disodium lauryl sulfosuccinate
		Disodium oleamido MEA-sulfosuccinate

Functions

Disodium oleamido MIPA-sulfosuccinate	Aluminum discarate, A. trisicarate
Disodium PEG-4 cocoamido MIPA-sulfosuccinate	Ammonium acrylates/acrylonitrogens copolymer
Iosostearamidopropylamine oxide	Behenic acid
Lauryl glucoside	Calcium alginate
Methyl gluceth-20	Carbomer
MEA-laureth sulfate	Carboxymethylchitosan
Mixed isopropanolamines myristate	N,O-Carboxymethylchitosonium
MIPA-lauryl sulfate	Carageenan (Chondrus crispus)
PEG-80 sorbitan laurate	Ceresin
PEG lauryl ether sulfate	Cetearyl candelillate
Potassium cocoate, P. lauryl sulfate	Dibenzylidene sorbitol
Quillaja saponaria extract	Ethylene/acrylic acid copolymer
Sodium caproamphoacetate	Ethylene/VA copolymer
Sodium capryloamphoacetate	Gelatin gum
Sodium capryloamphohydroxypropylsulfonate	Hexanediol behenyl beeswax
Sodium cocoamphoacetate	Hydrogenated jojoba oil
Sodium cocoamphopropionate	Hydrogenated jojoba wax
Sodium C12-15 pareth-25 sulfate	Hydroxystearic acid
Sodium C12-15 pareth-3 sulfonate	Jojoba wax
Sodium C12-15 pareth-15 sulfonate	Laneth-5, -15
Sodium C14-16 olefin sulfonate	Montmorillonite
Sodium deceth sulfate	Myreth-3-octanoate
Sodium laureth-2 sulfate	Octacosanyl stearate
Sodium laureth-3 sulfate	Oleth-3 phosphate
Sodium laureth-7 sulfate	Oleth-10 phosphate
Sodium lauriminothiopropionate	Poloxamer 105, 123, 124, 185, 235
Sodium lauryl sulfate, S. lauroacetate	Poloxamer 237, 238, 338, 407
Sodium lauryl sulfosuccinate	Polyethylene
Sodium magnesium laureth sulfate	Polyethylene, oxidized
Sodium myreth sulfate, S. myristyl sulfate	Polyquaternium-31
Sodium trideceth sulfate	Potassium alginate, P. chloride
Sodium tridecyi sulfate	Sodium nonoxynol-6 phosphate
TEA-dodecylbenzenesulfonate	Sodium tallowate
TEA-laureth sulfate	Synthetic beeswax
TEA-lauroyl collagen amino acids	TEA-acrylates/acrylonitrogens copolymer
TEA-lauroyl keratin amino acids	Tribehenin
TEA-lauryl sulfate	Glosser
TEA-palm kernel sarcosinate	C18-36 acid glycol ester
Wheat germamidopropyl betaine	Diphenyl dimethicone
Yucca vera extract	Methyl gluceth-10
Fragrance	Octyldodecyl lactate
Chamaecyparis obtusa oil	Phenyl methicone, P. trimethicone
Orange (Citrus aurantium dulcis) oil	Polyglyceryl-2 dioleate
Peppermint (Mentha piperita) oil	Polyisobutene
Phenethyl alcohol	Polyisobutene/isohexapentacontahectane
Fragrance solvent	Polyisobutene/isooctahexacontane
Benzyl benzoate	Poly(methacrylamidopropyltrimonium chloride
Diethyl phthalate	PPG-10 methyl glucose ether
Triacetin	PPG-36 oleate
Triethyl citrate	Tea (Camellia sinensis) oil
Fungicide	Tribehenin
Astrocaryum murumuru extract	Hair care
Azadirachta indica extract	Genitiana scabra extract
Captan	Maidenhair fern extract
Diiodomethyltolylsulfone	Nicotinamide
Ficus racemosa extract	Nicotinic acid
Hexetidine	Paeonia lactiflora extract
Ligustrum jeholense extract	Waercrest (Nasturtium officinale) extract
Mauritia flexosa extract	Hair conditioner
Melaleuca symphyocarp extract	Amino bispropyl dimethicone
Melia australasica extract	Amodimethicone
Melia azadirachta extract	AMPD-iosostearyl hydrolyzed collagen
Mushroom (Cordyceps sabolifera) extract	Aqua Ichthammol
Mushroom (Coriolus versicolor) extract	Babassu (Orbignya oleifera) oil
Sodium undecylenate	Babassuamidopropalkonium chloride
Tea tree (Melaleuca alternifolia) oil	Behenamidopropyl dimethylamine
Thiabendazole	Behenamidopropyl hydroxyethyl dimonium chloride
Undecylenamide MEA	Behentrimonium chloride
Zinc undecylenate	Biotin
Ziziphus jujuba extract	Bis(hydroxyethyl bisacetyl malonamide
Gellant	Borageamidopropyl phosphoryl PG-dimonium chloride
Acrylic acid/acrylonitrogens copolymer	Brazil nut (Bertholletia excelsa) oil
Agar	
Algin	

Functions

Oleyl dimethylamidopropyl ethonium ethosulfate	VA/butyl maleate/isobornyl acrylate copolymer	Panthenyl ethyl ether
Palmitamidodecanediol	VA/crotonates/vinyl neodecanoate copolymer	PEG-4
Panthenyl ethyl ether	VA/crotonates/vinyl propionate copolymer	Polyamino sugar condensate
Pauionia imperialis extract	VA/crotonates copolymer	Potassium lactate
Peach (Prunus persica) leaf extract	Vinyl caprolactam/PVP/dimethylaminoethylmethacrylate copolymer	Propylene glycol
PEG-2 cocomonium chloride		Propyltrimonium hydrolyzed collagen
PEG-120 jojoba acid/alcohol		Propyltrimonium hydrolyzed soy protein
PG-hydroxyethylcellulose lauryldimonium chloride		Propyltrimonium hydrolyzed wheat protein
PG-hydroxyethylcellulose cocodimonium chloride		Quatern-22
PG-hydroxyethylcellulose lauryldimonium chloride		Rice (Oryza sativa) germ oil
PG-hydroxyethylcellulose stearylimonium chloride		Sea Salts (Maris sal)
Phenyl trimethicone		Shea butter (Butyrospermum parkii)
Phospholipids		Silk powder
Phytantriol		Sodium behenoyl lactylate
Polyoxyethylene polyoxypropylene glycol		Sodium caproyl lactylate
Polypropylene glycol		Sodium cocoyl lactylate
Polyquaternium-4, -6, -7, -10		Sodium hyaluronate
Polyquaternium-12, -28, -39		Sodium isostearoyl lactylate
PPG-5-ceteth-10 phosphate		Sodium lactate, S. lauroyl lactylate, S. PCA
Propyltrimonium hydrolyzed collagen		Sodium polyglutamate
Propyltrimonium hydrolyzed soy protein		Sodium stearoyl lactylate
Propyltrimonium hydrolyzed wheat protein		Sorbitan laurate
Quaternium-18, -75, -81, -82		Sorbitan sesquioleate
Quaternium-79 hydrolyzed keratin		Sorbitol
Quaternium-79 hydrolyzed silk		Sphingolipids
Sambucus nigra extract oil		TEA-PCA
Sesamidopropalkonium chloride		Urea
Silicone quaternium-1, -8		
Sodium cocoamphoacetate		
Sodium cocoyl hydrolyzed collagen		
Sodium polystyrene sulfonate		
N-Soya-(3-amidopropyl)-N,N-dimethyl-N-ethyl ammonium ethyl sulfate		
Steapvrnum chloride		
Stearaikonium chloride		
Stearamidopropyl dimethylamine		
Stearidimonium hydroxypropyl hydrolyzed wheat protein		
Stearinmonium chloride		
Stearinmonium hydroxyethyl hydrolyzed collagen		
N-Stearyl-(3-amidopropyl)-N,N-dimethyl-N-ethyl ammonium ethyl sulfate		
Stenocalyx micalii extract		
Sulfur		
Tallowbenzylidemethylammonium chloride, hydrogenated		
Tallowtrimonium chloride		
Tea (Camellia sinensis) oil		
TEA-cocooyl hydrolyzed soy protein		
Thenovit methionate		
Trimethylsilylaminodimethicone		
Wheat amino acids		
Hair set resin polymer		
Acrylates/acrylamide copolymer		
Acrylates/PVP copolymer		
Acrylates/hydroxyesters acrylates copolymer		
Acrylates/octylarvlamide copolymer		
AMP-acrylates copolymer		
Butylester of PVM-MA copolymer		
Carboxylated vinylacetate terpolymer		
Diglycol/CHDM/isophthalates/SIP copolymer		
Eclipta alba extract		
Ethyl ester of PVM/MA copolymer		
Hydroxypropyl chitosan		
Isopropyl ester of PVM/MA copolymer		
Octylacrylamide/acrylates/butylaminoethyl methacrylate copolymer		
Polymethacrylamidopropyltrimonium chloride		
Polypropylene glycol oligosuccinate		
PVP		
PVP/dimethylaminoethylmethacrylate copolymer		
PVP/Poly carbamyl polyglycol ester		
PVP/VAc copolymer		
PVP/VAc-vinyl propionate copolymer		
Sodium polyacrylate		
Hair sheen		
Maidenhair fern extract		
Tetrabutoxypropyl methicone		
Hair waving		
Ammonium thioglycolate, A. thiolactate		
Argania spinosa oil		
L-cysteine HCL		
Cystine		
Diammonium dithiodiglycolate		
Dilauryl thiodipropionate		
Ethanolamine sulfite, E. thioglycolate		
Ethanolamine thiolactate		
Glyceryl thioglycolate		
Hydroxymethyl dioxazabicyclooctane		
Jojoba esters		
Monoethanolamine thiolactate		
Shea butter, ethoxylated		
Sodium thioglycolate		
Thioglycerin		
Thioglycolic acid		
Thiolactic acid		
Humectant		
Acetamide MEA		
Acetyl monoctehanolamine		
6-(N-Acetylamo)oxyhexyltrimonium chloride		
Adenosine phosphate		
Ammonium lactate		
Atelocollagen		
Calcium pantothenate		
Calcium stearoyl lactylate		
Carboxymethyl chitin		
Carboxymethyl chitosan succinamide		
Chitosan PCA		
Cholesteryl hydroxystearate		
Collagen amino-polysiloxane hydrolyzate		
Colloidal oatmeal		
Copper PCA methylsilanol		
Dimethicone copolyol laurate		
Dipotassium glycyrrhizinate		
Ethyl ester of hydrolyzed silk		
Fatty quaternary amine chloride complex		
Glucose glutamate		
Glycerin-4-S-lactate		
Glycereth-7, -12, -26		
Glycerin		
Honey extract		
Hydrogenated passion fruit oil		
Hydrolyzed casein		
Hydrolyzed fibronectin		
Hydrolyzed glycosaminoglycans		
Hydrolyzed oat protein		
Hydrolyzed silk		
Hydrolyzed soy protein		
Hydroxypropyl chitosan		
Hydroxypropyltrimonium hydrolyzed casein		
Hydroxypropyltrimonium hydrolyzed silk		
Hydroxypropyltrimonium hydrolyzed soy protein		
Hydroxypropyltrimonium hydrolyzed wheat protein		
Keratin amino acids		
Lactamide DGA, MEA		
Lactamidopropyl trimonium chloride		
Lactic acid		
Lactose		
Lauroyl lysine		
Maltitol		
Mannitol		
Methyl gluceth-10, -20		
Natto gum		
Oat (Avena sativa) extract, protein		
Panthenol		
Lathering agent		
Ammonium cocoyl sarcosinate		
Ammonium C12-15 alkyl sulfate		
Ammonium lauroyl sarcosinate		
Cocamide MEA ethoxylate		
Cocamidopropyl dimethylaminohydroxypropyl hydrolyzed collagen		
Lauroyl sarcosine		
Mynstoyl sarcosine		
Sodium cocoyl sarcosinate		
Sodium lauroyl sarcosinate		
Sodium methyl cocoyl taurate		
Sodium myristoyl sarcosinate		
TEA-cocooyl sarcosinate		
TEA-lauroyl sarcosinate		
Lubricant		
Aluminum salt octenyl succinate		
Amoquimethicone		

Functions

Boron nitride
 Calcium aluminum borosilicate
 Calcium stearate
 Caprylic/capric triglyceride
 Coceth-7 carboxylic acid
 Coconut (Cocos nucifera) oil
 Cyclomethicone
 Diisodetyl adipate
 Diisostearyl fumarate
 Dimethicone copolyol
 Glyceryl isostearate, G. oleate
 Glyceryl polymethacrylate
 Gold of Pleasure oil
 Hyaluronic acid
 Hydrogenated coconut oil
 Hydrogenated cottonseed oil
 Hydrogenated palm oil
 Hydrogenated soybean/cottonseed oil
 Hydrogenated soybean oil
 Hydrogenated vegetable oil
 Hydrolyzed oat flour
 Hydroxypropyl guar
 Isodetyl stearate
 Isopropyl lanolate
 Isostearyl diglyceryl succinate
 Jojoba esters
 Lanolin oil
 Laureth-3 phosphate
 Magnesium myristate, M. stearate
 Mango (Mangifera indica) oil
 Mineral oil (Paraffinum liquidum)
 Mink oil
 Monoolein
 Monoolein citrate
 Neatroot oil
 Oleostearine
 Partially hydrogenated soybean oil
 PEG-2 stearate
 PEG-4 dilaurate
 PEG-5M
 PEG-9M
 PEG-23M
 PEG-27 lanolin
 PEG-30 lanolin
 PEG-40 lanolin, P. stearate
 PEG-45M
 PEG-90M
 PEG-160M
 PEG/PPG-17/6 copolymer
 Pentaerythrityl tetraoleate
 Petrolatum
 Phenethyl dimethicone
 Phenyl methicone
 Polyacrylamidomethylpropane sulfonic acid
 Polybutene
 Polydimethicone copolyol
 Polyglycerol ester of mixed vegetable fatty acids
 Polymethylsilsesquioxane
 Potassium laurate, P. myristate
 Potassium tallowate
 PPG-2 myristyl ether propionate
 PPG-3 myristyl ether
 PPG-9-butein-12
 PPG-11 stearyl ether
 PPG-12-butein-16
 PPG-12-PEG-50 lanolin
 PPG-14 butyl ether
 PPG-20 cetyl ether
 PPG-20-butein-30
 PPG-24-butein-27
 PPG-28-butein-35
 PPG-36 oleate
 PPG-40 butyl ether
 Quaternium-79 hydrolyzed keratin
 Quaternium-79 hydrolyzed silk
 Rice (Oryza sativa) starch
 Shea butter (Butyrospermum parkii) extract
 Shorea stenopetala butter
 Silica
 Stearamide MEA, S. MEA-stearate
 Stearamoyltrimethylsilane

Stearyl dimethicone
 Triisostearyl citrate
 Triolein
 Trisodium HEDTA
 Triundecanoin
 Zinc laurate, Z. stearate

Miscellaneous

Adhesion promoter—Glycerin/diethylene glycol/adipate crosspolymer
 Analgesic—Glycol salicylate
 Anesthetic—Benzocaine
 Anti-elastic—Hydrolyzed *Ulva lactuca* extract
 Anti-itching—Sodium stearate oil sulfonate
 Antiacid—Magnesium hydroxide, Magnesium silicate, Simethicone
 Antifoam—Dimethicone silicate, Simethicone
 Anulipasic—Laminaria saccharina extract
 Antipruritic—Coal tar
 Antispasmodic—Garlic (*Allium sativum*) extract
 Antirinkle—Chinese hibiscus (*Hibiscus rosa-sinensis*) extract
 Barrier—Glycerin/diethylene glycol/adipate crosspolymer
 Cell regeneration—Glycoproteins. Hydrolyzed *Ulva lactuca* extract
 Co-emulsifier—Choleseryl behenyl/octyldodecyl lauroyl glutamate, Isododecane
 Colloid—Gelatin
 Cooling agent—Menthyl PCA, Menthone, glycerin acetate
 Detoxifier—Clover (*Trifolium pratense*) extract
 Dye stabilizer—Uric acid
 Filler—Mica
 Fragrance stabilizer—2,2,4,4'-Tetrahydroxybenzophenone
 Free radical scavenger—Melanin
 IR filter—Corallina officinalis

Lanolin substitute—PEG-30 jojoba acid/alcohol
Lipolytic—Gelidium cartilagineum
Oxidant—Barium peroxide, Hydrogen peroxide
 Urea peroxide
Oxygen carrier—Perfluorodecalin
Peroxide stabilizer—Phenacethin, Sodium stannate
Scalp stimulant—Birch (*Betula alba*) leaf extract
Sebostatic—Laminaria saccharina extract
Shine enhancer—Hydrolyzed wheat protein hydroxypropyl polysiloxane
Skin barrier lipid—Ceramide 3, N(27-Stearoyloxy-heptacosanoyl) phytosphingosine
Skin clarifier—Oat (*Avena sativa*) bran extract
Skin purifier—Birch (*Betula alba*) leaf extract
Substantivity—Dimethicone copolyol bis(hydroxyethyl)amine, Dimethicone hydroxypropyl trimonium chloride, Trimethylsilylamodimethicone
Sunless tanning—Acetyl tyrosine, *Eclipta alba* extract in white emulsion
Tonic—Kiwi (*Actinidia chinensis*) fruit extract, Matricaria (*Chamomilla recutita*) extract, Orange (*Citrus aurantium dulcis*) peel extract
Viscosity stabilizer—Diisodetyl adipate
Spreading agent—Stearyl heptanoate
Wound healing—Comfrey (*Symphytum officinale*) leaf extract
Waterproofing agent—PVP/eicosene copolymer, PVP/hexadecene copolymer, Tricantanyl PVP

Moisture barrier

Acrylates/octylarylamide copolymer
 Betaglucan
 C16-18 alkyl methicone
 Cholesterol
 Glycolipids
 Isoeicosane

BERNEL

CHEMICAL COMPANY

Up to date, innovative technology for the cosmetic industry has been the driving force behind Bernel Chemical Company since its founding in 1982. Combining over 60 years of cosmetic expertise and marketing knowledge, we have introduced more than 20 raw materials for use by the cosmetic chemist.

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BERNEL
 CHEMICAL COMPANY

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Functions

Isonexadecane	Emblica officinalis extract	Methylsilanol elastinate, M. mannuronate
Lanosterol	Ethyl maltol	Milk amino acids
Octyl pelargonate, O. stearate	Eugenia jambolana extract	Mineral oil (Paraffinum liquidum)
Polyisobutene	Evening primrose (Oenothera biennis) extract, oil	Molvbaenum aspartate
Polyisobutene/isoheptadentataconate	Galla sinensis extract	Mouriri apiranga extract
Polyisobutene/isoctanexaconate	Ganoderma lucidum oil	Natto gum
Silica silicate	Ginseng (Panax ginseng) extract	Neiumonium speciosum extract
Trihydroxypalmitamidoxy propyl myristyl ether	Gleditsia sinensis extract	Neopenetyl glycol dicaprate
Trimethylsiloxysilicate	Glycereth-12	Oat (Avena sativa) protein
Moisturizer	Glyceryl aminate, G. collagenate	Octyl hydroxystearate
Acetamidopropyl trimonium chloride	Glyceryl polymethacrylate	Ophiopogon japonicus extract
Adenosine triphosphate	Glycolic acid	Orange (Citrus aurantium dulcis) peel wax
Aesculus chinensis extract	Glycolipids	Palmetto extract
Algae (Ascophyllum nodosum) extract	Glycosaminoglycans	Panethine
Algae extract	Glycosphingolipids	Panthenyl ethyl ether
Aloe barbadensis, A. b. extract	Gneuma amazonicum extract	Paraffin
Ammonium lactate	Grape (Vitis vinifera) seed oil	Partially hydrogenated soybean oil
Amniotic fluid	Hazel (Corylus avellana) nut oil	Peanut (Arachis hypogaea) oil
Apple (Pyrus malus) extract	Honey extract	Pecan (Carya illinoensis) oil
Apricot (Prunus armeniaca) kernel oil	Hyaluronic acid	PEG-4, -8, -12
Arginine PCA	Hybrid safflower (Carthamus tinctorius) oil	PEG-70 mango glycerides
Atelocollagen	Hydrogenated castor oil	PEG-75 shea butter glycerides
Artemisia apicaria extract	Hydrogenated coconut oil	PEG-75 shorea butter glycerides
Astrocarium murumuru extract	Hydrogenated cottonseed oil	PEG-100 stearate
Avocado (Persea gratissima) extract, oil	Hydrogenated lecithin	Pentaerythrityl isostearate/caprate/caprylate/adipate
Avocado (Persea gratissima) unsaponifiables	Hydrogenated palm oil	Pentaerythrityl stearate/caprate/caprylate/adipate
Babassu (Orbignya oleifera) oil	Hydrogenated polysisobutene	Pentylene glycol
Baccharis gasipaes extract	Hydrogenated soybean oil	Perfluoropolymethylisopropyl ether
Benincasa hispida extract	Hydrogenated soybean/cottonseed oil	Petrolatum
Betaglucan	Hydrogenated vegetable oil	Petroleum wax
Betaine	Hydrolyzed carbolipoprotein	Pfaffia spp. extract
Borage (Borago officinalis) seed oil	Hydrolyzed collagen	Pistachio (Pistacia vera) nut oil
Brazil nut (Bertholletia excelsa) extract, oil	Hydrolyzed elastin	Placental protein
C10-30 cholesterol/lanosterol esters	Hydrolyzed fibronectin	Plankton extract
Calcium pantothenate	Hydrolyzed glycosaminoglycans	Polysaccharide condensate
Calcium protein complex	Hydrolyzed keratin	Polybutene
Caprylic/capric triglyceride	Hydrolyzed milk protein	Polyunsaturated fatty acids
Caprylic/capric lauric triglyceride	Hydrolyzed oats	Potassium DNA, P. lactate, P. PCA
Caprylic/capric linoleic triglyceride	Hydrolyzed pea protein	PPG-8/SMDI copolymer
Caprylic/capric/oleic triglycerides	Hydrolyzed placental protein	PPG-20 methyl glucose ether disisostearate
Cashew (Anacardium occidentale) nut oil	Hydrolyzed rice protein	Propylene glycol dicaprylate/dicaprate
Celastrus paniculata extract	Hydrolyzed transgenic collagen	Propylene glycol diacetate
Ceramide 33 (liquid soy extract)	Hydrolyzed serum protein	Pumpkin (Cucurbita pepo) seed oil
Chia (Salvia hispanica) oil	Hydrolyzed silk	Quinoa (Chenopodium quinoa) extract
Chinese hibiscus (Hibiscus rosa-sinensis) extract	Hydrolyzed sweet almond protein	Rapeseed (Brassica campestris) oil
Chitin	Hydrolyzed wheal protein	Rehmannia chinensis extract
Chitosan, C. PCA	Hydroxyethyl chitosan	Rice (Orzva sativa) bran oil
Cholesterol esters	Inositol	Rose Water
Cholesterol	Isodecyl salicylate	Royal jelly extract
Cholesteryl/behenyl/octyldodecyl lauroyl glutamate	Isostearyl hydrolyzed animal protein	Saccharide isomerate
Cocodimonium hydroxypropyl hydrolyzed collagen	Jojoba (Buxus chinensis) oil	Saccharomyces lvsate extract
Cocodimonium hydroxypropyl hydrolyzed silk	Jojoba esters	Saccharomyces/soy protein ferment
Cocodimonium hydroxypropyl hydrolyzed wheat protein	Keratin amino acids	Safflower (Carthamus tinctorius) oil
Cocodimonium hydroxypropyl silk amino acids	Kiwi (Actinidia chinensis) fruit extract	Seientium aspartate, S. protein complex
Collagen	Kola (Cola acuminata) extract	Sericin
Collagen amino acids, C. phthalate	Kukui (Aleurites moluccana) nut oil	Serum albumin
Copper aspartate, C. protein complex	Lactamide DGA, L. MEA	Sesame (Sesamum indicum) oil
Corn (Zea mays) oil	Lactic acid	Shea butter (Butyrospermum parkii)
Cottonseed (Gossypium) oil	Lactobacillus/whey ferment	Shea butter (Butyrospermum parkii) extract
Crataegus cuneata extract	Lactococcus hydrolysate	Shorea stenoptera butter
Cucumber (Cucumis sativus) extract	Lactoyl methylsilanol elastinate	Silk amino acids
Desamido collagen	Lanolin alcohol	Sodium carboxymethyl beta-glucan
Dicaprylyl maleate	Lauryl PCA	Sodium chondroitin sulfate
Diisocetyl dodecanedioate	Lecithin	Sodium DNA, S. hyaluronate
Diisostearyl adipate	Lesquerella fendleri oil	Sodium lactate, S. PCA
Dimethyl hyaluronate	Liposomes	Soluble collagen
Dimethylsilanol hyaluronate	Lysine PCA	Soluble transgenic elastin
Diocetyl dodecyl dimer dilinoleate	Macadamia ternifolia nut oil	Soybean (Glycine soja) oil
Diocetyl dodecyl dodecanedioate	Magnesium aspartate	Spherical cellulose acetate
Dipentaerythritol fatty acid ester	Maltitol	Spondias amara extract
Dog rose (Rosa canina) hips extract	Manganese aspartate	Squalene
Dog rose (Rosa canina) seed extract	Mango (Mangifera indica) oil	Stomach extract
Echites glauca extract	Maman	Sunflower (Helianthus annuus) seed oil
Elastin amino acids	Marine polyaminosaccharide	Superoxide dismutase

Functions

Tormentil (<i>Potentilla erecta</i>) extract	Stearyl stearate	Ammonium acrylates/acrylonitrogens copolymer
Trehalose	Styrene homopolymer	AMP-acrylates copolymer
Triundecanoic	Styrene/acrylates copolymer	AMP-isostearyl hydrolyzed collagen
Vegetable oil	Styrene/PVP copolymer	Butylester of PVM-MA copolymer
Walnut (<i>Juglans regia</i>) oil	Trisostearin PEG-6 esters	Calcium carrageenan
Watercress (<i>Nasturtium officinale</i>) extract	Plasticizer	Carboxylated vinylacetate terpolymer
Wheat (<i>Triticum vulgare</i>) germ extract, germ oil	Acetyl tributyl citrate	Ceteareth-2 phosphate
Yarrow (<i>Achillea millefolium</i>) extract	Acetyl triethyl citrate	Ceteareth-5 phosphate
Wheat amino acids	AMP-isostearyl hydrolyzed wheat protein	Ceteareth-10 phosphate
Yeast (<i>Saccharomyces cerevisiae</i>) extract (Faex)	AMPD-isostearyl hydrolyzed collagen	Ceteareth-29, -34
Yogurt filtrate	Cyclohexane dimethanol dibenzoate	Coco-glucoside
Zinc aspartate	Dibutyl phthalate	Cocodimonium hydroxypropoxyethyl cellulose
Ziziphus jujuba extract	Diethyl phthalate	C12-13 pareth-4, -9, -23
Naturilizer	Diethylene glycol dibenzoate	DEA-ceteareth-2-phosphate
2-Aminobutanol	Diisopropyl sebacate	DEA-oleth-5-phosphate
Aminoethyl propanediol	Dimethicone copolyol	DEA-oleth-20-phosphate
Aminomethyl propanediol	Dimethyl phthalate	Diglycol/CHDM/isopthalates/SIP copolymer
Aminomethyl propanol	Dipropylene glycol dibenzoate	Diisopropyl dimer dilinoleate
Ammonium carbonate	Ethyl ester of hydrolyzed keratin	Diisostearoyl trimethylolpropane siloxy silicate
Calcium hydroxide	Glycerol tribenzoate	Diisostearyl dimer dilinoleate
Diethanolamine	Glycol	Dilinoleic acid
Ethanolamine	Hydrolyzed serum protein	Dodecanedioic acid/cetearyl alcohol/glycol copolymer
Glucamine	Isocetyl salicylate	Eclipta alba extract
Isopropanolamine	Isodecyl benzoate	Ethyl ester of PVM/MA copolymer
Isopropylamine	Isosteicosane	Ethylene/acrylic acid copolymer
2-Methyl-4-hydroxypyrrolidine	Isopropyl lanolate	Ethylene/VA copolymer
Morpholine	Isostearyl hydrolyzed collagen	Glycereth-26 phosphate
Sodium bromate	Lauroyl hydrolyzed collagen	Hyaluronic acid
Succinic acid	Marine collagen	Hydrolyzed RNA
Tetrahydroxypropyl ethylenediamine	Monostearyl citrate	Hydrolyzed wheat protein polysiloxane polymer
Triethanolamine	Neopentyl glycol dibenzoate	Hydroxypropyltrimonium hydrolyzed collagen
Tromethamine	Octyl benzoate, O. laurate	Hydroxypropyltrimonium hydrolyzed wheat protein
Oil absorbent	PEG-60 shea butter glycerides	Laureth-40
Hydrated silica	Pentaerythritol tetrabenzoate	Lauryldimonium hydroxypropyl hydrolyzed soy protein
Poly(methyl methacrylate)	Polyvinylidene glycol dibenzoate	Methacryloyl ethyl betaine/acrylates copolymer
Silicon dioxide hydrate	PPG-12-PEG-50 lanolin	Octylacrylamide/acrylates/butylaminoethyl methacrylate copolymer
Walnut (<i>Juglans regia</i>) shell powder	PPG-20 cetyl ether	Oleth-2 phosphate
Ointment base	PPG-20 lanolin alcohol ether	Oleth-5 phosphate
Borage (<i>Borago officinalis</i>) seed oil	Propylene glycol dibenzoate	PEG-3 lanolate
Caprylic/capric/stearic triglyceride	Propylene glycol myristyl ether acetate	PEG-4 stearate
Glyceryl cocoate	Rice (<i>Oryza sativa</i>) bran wax	PEG-5M
Hydrogenated coco-glycerides	Serum protein	PEG-7 glyceryl cocoate
Lanolin	Tosylamide/epoxy resin	PEG-8 glyceryl laurate
Mink oil	Triacein	PEG-8/SMDI copolymer
Oleostearne	Tributyl citrate	PEG-9 castor oil
Tallow	Triethyl citrate	PEG-9M
Opacifier	Trimethyl pentanediol dibenzoate	PEG-11 babassu glycerides
Banum sulfate	Trimethyllethanetribenzoate	PEG-12 palm kernel glycerides
C12-16 alcohols	Polish	PEG-12 stearate
Cetearyl octanoate	Acrylates copolymer	PEG-14 avocado glycerides
Cetyl myristate, C. palmitate	Aluminum silicate	PEG-15 glyceryl laurate
Cocamidopropyl lauryl ether	Neatsfoot oil	PEG-20 corn glycerides
Glyceryl distearate	Tallow	PEG-20 evening primrose glycerides
Glyceryl hydroxystearate	Polymer	PEG-20 glyceryl oleate
Glyceryl myristate, G. stearate	Acrylamide sodium acrylate copolymer	PEG-23 oleate
Glycol distearate, G. stearate	Acrylates-VA crosspolymer	PEG-23M
Magnesium myristate	Acrylates/acrylamide copolymer	PEG-29 castor oil
PEG-2 distearate, P. stearate	Acrylates/hydroxyesters acrylates copolymer	PEG-42 babassu glycerides
PEG-2 stearate SE	Acrylates/octylacrylamide copolymer	PEG-45 safflower glycerides
PEG-3 distearate	Acrylates/sieareth-20 methacrylate copolymer	PEG-45M
Propylene glycol myristate, P. g. stearate	Adipic acid-epoxypropyl diethylenetriamine copolymer	PEG-60 evening primrose glycerides
Stearamide	Adipic acid/dimethylaminohydroxypropyl diethylene triamine copolymer	PEG-60 hydrogenated castor oil
Stearamide DIBA-stearate	Ammonium acrylates copolymer	PEG-75 castor oil
Stearamide MEA		PEG-90M
Stearamide MEA-stearate		PEG-120 distearate
Stearamidopropyl dimethylamine lactate		

3 BETTER IDEAS.



1 BETTER SOURCE.



Functions

PEG-150 lanolin	Powder	Benzalkonium chloride
PEG-160M	Acrylates copolymer, spherical powder	Benzethonium chloride
PG-hydroxyethylcellulose lauryldimonium chloride	Attapulgite	Benzoic acid
PG-hydroxyethylcellulose cocodimonium chloride	Boron nitride	Benzyl alcohol
PG-hydroxyethylcellulose stearidimonium chloride	Calcium aluminum borosilicate	Benzylparaben
Polyethylene, ionomer	Calcium carbonate	5-Bromo-3-nitro-1,3-dioxane
Polyethylene, micronized	Cellulose acetate	2-Bromo-2-nitropropane-1,3-diol
Polyethylene, oxidized	Corn (Zea mays) cob powder, starch	Buryiparaben
Polyglyceryl-2 polyhydroxystearate	Hydrogenated jojoba wax	Calcium propionate
Polymethacrylamidopropyltrimonium chloride	Magnesium carbonate, M. myristate	Cetrimonium bromide
Polyquaternium-6, -7, -10, -11, -22, -39	Magnesium stearate	Cetyl pyridinium chloride
Polyisilicone-8	Mica	Chloroxylene
Potassium alginate	Microcrystalline cellulose	Chlorphenesin
Potassium lauroyl collagen amino acids	Nylon-6	o-Cymen-5-ol
Potassium lauroyl hydrolyzed soy protein	Nylon powder	Diazolidinyl urea
Potassium lauroyl wheat amino acids	Oat (Avena sativa) starch	Dichlorobenzyl alcohol
PPG-8/SMDI copolymer	Polyamide 12	Dichlorobiphen
PPG-12/SMDI copolymer	Polyethylene	Diiodomethyltolylsulfone
PPG-51/SMDI copolymer	Polymethyl methacrylate	Dimethyl hydroxymethyl pyrazole
PVM/MA decadiene crosspolymer	Polymethylsilsesquioxane	Dimethyl oxazolididine
PVP/dimethylaminoethylmethacrylate copolymer	PTFE	Disodium EDTA
PVP/VA copolymer	Silica	DMDM hydantoin
Sodium cocoyl hydrolyzed wheat protein	Silk powder	EDTA
Stearidimonium hydroxypropyl hydrolyzed wheat protein	Spherical cellulose acetate	Erythorbic acid
Steareth-2 phosphate	Talc	7-Ethylcyclooxazolididine
TEA-acrylates/acrylonitrogen copolymer	Tapioca dextrin	Ethiparaben
Tosylamide/epoxy resin	Zinc laurate	Fomistopsis officinalis oil
Tosylamide/formaldehyde resin	Powder, absorbent	Formadehyde
Trideceth-5, -6, -7, -8	Aluminum starch octenylsuccinate	Glutaral
VA/butyl maleate/isobornyl acrylate copolymer	Clays (white, yellow, red, green, pink)	Glyceryl laurate
VA/crotonates/vinyl neodecanoate copolymer	Sorbitol	HEDTA
Vinyl caprolactam/PVP/	Tapioca	Hexamidine diisethionate
dimethylaminoethylmethacrylate copolymer	Preservative	Hexendine
Wheat (Triticum vulgare) protein	Alcohol	Imidazolidinyl urea
Xanthan gum	Ascorbic acid	Isobutylparaben
	Ascorbyl palmitate	Isopropyl sorbate

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Functions

Isobutane	Sodium caseinate	Liposomes
Propane	Sodium cocoyl hydrolyzed collagen	Magnesium sulfate hepta-hydrate
Protein	Sodium cocoyl hydrolyzed soy protein	Octyldodecyl behenate, O. myristate
Albumen	Sodium myristoyl hydrolyzed collagen	bis-Octyldodecyl stearoyl dimer dilinoleate
Atelocollagen	Sodium oleoyl hydrolyzed collagen	Octyldodecyl stearoyl stearate
Bletia hyacinthina extract	Sodium stearoyl hydrolyzed collagen	Octyl hydroxystearate
Chrysanthemum monstorum extract	Sodium undecylenoyl hydrolyzed collagen	PEG-3 stearate
Cocodimonium hydroxypropyl hydrolyzed collagen	Sodium/TEA-lauroyl hydrolyzed collagen	PEG-4 oleamide
Cocodimonium hydroxypropyl hydrolyzed keratin	Sodium/TEA-lauroyl hydrolyzed keratin	PEG-6 capro/caprylic glycerides
Cocodimonium hydroxypropyl hydrolyzed soy protein	Soluble collagen	PEG-7 glyceryl cocoate
Cocodimonium hydroxypropyl hydrolyzed wheat protein	Soluble keratin	PEG-16
Cocoyl hydrolyzed collagen	Soluble wheat protein	Propylene glycol dipelargonate
Collagen, C. phinalate	Soy (Glycine soja) protein	
Collagen amino-polysiloxane hydrolyzate	Steardimonium hydroxypropyl hydrolyzed collagen	
Deoxyribonucleic acid	Stearimonium hydroxyethyl hydrolyzed collagen	
Desamido collagen	TEA-cocoyl hydrolyzed collagen	
Elastin amino acids	TEA-cocoyl hydrolyzed soy protein	
Embryo extract	TEA-lauroyl collagen amino acids	
Ethyl ester of hydrolyzed animal protein	TEA-lauroyl keratin amino acids	
Fibronectin	Trachea hydrolysate	
Gelatin	Triectionium hydrolyzed collagen ethosulfate	
Human placental protein	Wheat (Triticum vulgare) germ extract, protein	
Hydrolyzed collagen	Wheat amino acids	
Hydrolyzed extensin	Wheat peptide	
Hydrolyzed fish protein	Wheat protein	
Hydrolyzed hemoglobin		
Hydrolyzed keratin		
Hydrolyzed lactalbumin		
Hydrolyzed milk protein		
Hydrolyzed soy flour		
Hydrolyzed sweet almond protein		
Hydroxypropyltrimonium hydrolyzed collagen		
Isostearoyl hydrolyzed collagen		
Keratin		
Lactoferrin		
Lactoglobulin		
Lauridimonium hydroxypropyl hydrolyzed collagen		
Marine collagen		
Methylsulfanil elastinate		
Potassium abietoyl hydrolyzed collagen		
Potassium cocoyl hydrolyzed collagen		
Potassium myristoyl hydrolyzed collagen		
Potassium oleoyl hydrolyzed collagen		
Potassium undecylenoyl hydrolyzed collagen		
Propyltrimonium hydrolyzed collagen		
Propyltrimonium hydrolyzed soy protein		
Propyltrimonium hydrolyzed wheat protein		
Protein hydrolysates		
Quaternium-70 hydrolyzed keratin		
Quaternium-79 hydrolyzed silk		
Rice peptide		
RNA		
Serum albumin, S. protein		
Silk powder		
	Protein, hydrolyzed	
	Ethyl ester of hydrolyzed silk	
	Hydrolyzed casein	
	Hydrolyzed elastin	
	Hydrolyzed mushroom (Tricholoma matsutake) extract	
	Hydrolyzed pea protein	
	Hydrolyzed rice protein	
	Hydrolyzed serum protein	
	Hydrolyzed silk	
	Hydrolyzed soy protein	
	Hydrolyzed vegetable protein	
	Hydrolyzed wheat protein	
	Hydroxypropyltrimonium hydrolyzed casein	
	Hydroxypropyltrimonium hydrolyzed silk	
	Hydroxypropyltrimonium hydrolyzed soy protein	
	Hydroxypropyltrimonium hydrolyzed wheat protein	
	Reducing agent	
	Dimersyl thiadipropionate	
	Hydrolyzed zein, iodized	
	Hydrolyzed zein, sulfurized	
	Zinc formaldehyde sulfoxylate	
	Refatting agent	
	Caprylic/capric triglyceride PEG-4 esters	
	Cocamide MIPA	
	Diisostearyl dimer dilinoleate	
	Hydrogenated palm kernel glycerides	
	Isostearyl erucate, I. isostearate	
	Lecithin	

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Proteins

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Functions

Octamethyl cyclotetrasiloxane	Potassium cocoyl hydrolyzed collagen	Isodecyi salicylate
Phenyl methicone, P. trimethicone	Retinyl palmitate polypeptide	Jojoba (<i>Buxus chinensis</i>) oil
Polyether Trisiloxane	Salvia miltiorrhiza extract	Lady's Thistle (<i>Silybum marianum</i>) extract
Polymethyisilsesquioxane	Silt	Laminaria japonica extract
Polysilicone-8	Sodium cocoyl hydrolyzed collagen	Ligustrum <i>jehoense</i> extract
Quaternium-80	Soluble transgenic elastin	Liposomes
Silicone quaternium-1, -8	Steartrimonium hydroxyethyl hydrolyzed collagen	Magnolia spp. extract
Sodium-PG-propyl thiosulfate dimethicone	Stearyl methicone	Mango kernel oil
Stearoxymethicone/dimethicone copolymer		Marsilea minuta extract
Trimethylsilylamodimethicone		Meialeuca <i>hyperifolia</i> extract
Skin calming agent		Meialeuca <i>uncinata</i> extract
Cornflower (<i>Centaurea cyanus</i>) extract		Meialeuca <i>wilsonii</i> extract
Fennel (<i>Foeniculum vulgare</i>) extract		Methylsilanol tn PEG-8 glyceryl cocoate
Fenugreek extract		Oat (<i>Avena sativa</i>) meal
Linden (<i>Tilia cordata</i>) extract		Oyster (<i>Ostrea</i>) shell extract
Valerian (<i>Valeriana officinalis</i>) extract		Palmitamidodecanediol
Skin cleanser		Pearls (<i>Margarita margarita</i>)
Dog rose (<i>Rosa canina</i>) hips extract		Pentahydrosqualene
Papaya (<i>Carica papaya</i>) extract		Perfluorodecalin
Peach (<i>Prunus persica</i>) extract		Perfluoropolymethylisopropyl ether
Rose (<i>Rosa multiflora</i>) extract		Petroiatum
Willow (<i>Salix alba</i>) extract		PEG-8/SMDI copolymer
Skin conditioner		PEG-42 Ebiriko ceramides extract
Artemisia <i>apiacea</i> extract		Pfaffia spp. extract
Astrocaryum <i>tucuma</i> extract		Phospholipids
Bacris <i>gasipaes</i> extract		Plankton extract
Biotin		Polygonum multiflorum extract
Bishydroxyethyl bisceryl malonamide		Pongamol
Bletia <i>hyacinthina</i> extract		PPG-12/SMDI Copolymer
Borage (<i>Borago officinalis</i>) seed oil		PPG-5/SMDI Copolymer
Borageamidopropyl phosphadyl PG-dimonium chloride		Propyltrimonium hydrolyzed collagen
Carbocysteine		Quinoa (<i>Chenopodium quinoa</i>) extract, oil
Catalpa <i>kaempferia</i> extract		Salvia <i>miltiorrhiza</i> extract
Coco phosphatidyl PG-dimonium chloride		Sambucus <i>nigra</i> extract
Cocodimonium hydroxypropyl hydrolyzed keratin		Shark liver oil
Collagen amino acids		Shorea <i>roobosota</i> extract
Cyclomethicone		Sodium chondroitin sulfate
Dimethicone, D. copolvoi acetate		Soluble transgenic elastin
Emblica <i>officinalis</i> extract		Steartrimonium hydroxyethyl hydrolyzed collagen
Equisetum <i>arvense</i> extract		Sterculia <i>platanifolia</i> extract
Ethyl ester of hydrolyzed animal protein		Superoxide dismutase
Evening primrose (<i>Oenothera biennis</i>) oil		Trachea hydrolysate
Fomes <i>fomentarius</i> extract		Wheat (<i>Triticum vulgare</i>) germ extract, protein
Fomistopsis <i>officinalis</i> oil		White nettle (<i>Lamium album</i>) extract
Gelatin		Withania <i>somniferum</i> extract
Ginseng hydroxypropyltrimonium chloride butylene glycol		Xanthoxylum <i>bungeanum</i> extract
Glycolipids		Zinc oxide
Glycosphingolipids		
Gnetum <i>amazonicum</i> extract		Skin smoothing agent
Honey (Me)		Althea <i>officinalis</i> extract
Hydrolyzed carbolipoprotein		Coltsfoot (<i>Tussilago farfara</i>) leaf extract
Hydrolyzed elastin		Comfrey (<i>Symphytum officinale</i>) leaf extract
Hydrolyzed pea protein		Plantain (<i>Plantago major</i>) extract
Hydrolyzed rice protein		Sericin
Hydrolyzed serum protein		
Hydrolyzed silk		Skin softening
Hydrolyzed soy protein		Clays (white, yellow, red, green, pink)
Hydrolyzed vegetable protein		Cucumber (<i>Cucumis sativus</i>) extract
Hydrolyzed wheat protein		Kelp (<i>Macrocystis pyrifera</i>) extract
Inga <i>edulis</i> extract		Peach (<i>Prunus persica</i>) extract
Kiwi (<i>Actinidia chinensis</i>) fruit extract		Phenethyl dimethicone
Laminaria <i>japonica</i> extract		
Lecithin		Skin soothing
Marsilea <i>minuta</i> extract		Calendula <i>officinalis</i> extract
Nettle (<i>Urtica dioica</i>) extract		Cherry bark extract
Palmitamidodecanediol		Cucumber (<i>Cucumis sativus</i>) extract
Pearls (<i>Margarita margarita</i>)		Garlic (<i>Allium sativum</i>) extract
PEG-42 Ebiriko ceramides extract		Hysop (<i>Hysopus officinalis</i>) extract
Phenyl trimethicone		Jasmine (<i>Jasminum officinale</i>) extract
Phytantriol		Kelp (<i>Macrocystis pyrifera</i>) extract
Polygonum multiflorum extract		Mango kernel oil
Polyquaternium-7, -22, -30		Meadowsweet (<i>Spiraea ulmaria</i>) extract
Propyltrimonium chloride		Quince (<i>Pyrus cydonia</i>) seed extract
Propyltrimonium chloride		Slippery elm extract
Propyltrimonium chloride		Valerian (<i>Valeriana officinalis</i>) extract
Propyltrimonium chloride		Willow (<i>Salix alba</i>) extract
Propyltrimonium chloride		Witch hazel (<i>Hamamelis virginiana</i>) extract
Propyltrimonium chloride		Yarrow (<i>Achillea millefolium</i>) extract

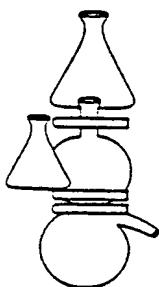
Functions

Solubilizer	PEG-15 castor oil PEG-18 stearate PEG-20 glyceryl isostearate. P. g. laurate PEG-20 glyceryl oleate. P. g. stearate PEG-20 methyl glucose sesquistearate PEG-20 sorbitan isostearate PEG-20 sorbitan tristearate PEG-24 hydrogenated lanolin PEG-25 castor oil PEG-25 hydrogenated castor oil PEG-30 castor oil PEG-30 glyceryl cocoate PEG-30 glyceryl isostearate PEG-30 glyceryl laurate PEG-30 glyceryl oleate PEG-30 glyceryl stearate PEG-33 castor oil PEG-35 castor oil PEG-36 castor oil PEG-40 castor oil PEG-40 glyceryl laurate. P. g. stearate PEG-40 hydrogenated castor oil PEG-40 hydrogenated castor oil PCA isostearate PEG-40 sorbitan diisostearate PEG-45 palm kernel glycerides PEG-48 hydrogenated castor oil PEG-50 castor oil PEG-50 hydrogenated castor oil PEG-60 almond glycerides PEG-60 castor oil PEG-60 corn glycerides PEG-60 glyceryl isostearate. P. g. stearate PEG-60 hydrogenated castor oil PEG-60 lanolin PEG-70 mango glycerides PEG-75 lanolin PEG-75 shea butter glycerides PEG-75 shorea butter glycerides PEG-80 hydrogenated castor oil PEG-80 jojoba acid/alcohol PEG-80 sorbitan laurate PEG-100 castor oil PEG-100 hydrogenated castor oil PEG-120 jojoba acid/alcohol PEG-200 trihydroxystearin Poloxamer 407 Polyglyceryl-3 oleate Polyglyceryl-6 dioleate Polyglyceryl-10 deaoleate. P. tetraoleate Polysorbate 20. 60. 80 PPG-2-isodeceth-4. -6. -9. -12	PPG-3 isosteareth-9 PPG-3 isoceteth-20 acetate PPG-5-ceteth-10 phosphate PPG-5-ceteth-20 PPG-6-decyldodeceth-12. -20. -30 PPG-12-PEG-65 lanolin oil PPG-15 stearyl ether PPG-18 butyl ether PPG-24 butyl ether PPG-26-buteth-26 PPG-33 butyl ether PPG-33-buteth-45 PPG-40-PEG-60 lanolin oil PPG-50 cetyl ether Propylene glycol dicaprylate, dicaprylate/ dicaprate Ricinoicamide DEA Ricinoiceth-40 Sodium alpha olefin sulfonate Sodium lauryl sulfate Sodium methylnaphthalenesulfonate Triethanolamine Triocanol Tromethamine
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Solvent

Acetic acid
Acetone
Alcohol. A. denat.
Benzophenone
Butoxydiglycol
Butyl acetate
n-Butyl alcohol
Butyl myristate. B. stearate
Butylene glycol
C9-11 isoparaffin
C10-11 isoparaffin
C10-13 isoparaffin
Caprylic alcohol
Castor (Ricinus communis) oil
Cetearyl octanoate
Cetyl stearyl octanoate
Chlorobutanol
Decyl alcohol
Diethylene glycol
Diethylene glycol dibenzoate
Diethyl sebacate
Diisooctyl adipate
Diisopropyl adipate. D. sebacate
Dimethyl phthalate
Dipropylene glycol

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Functions

Dipropylene glycol dibenzoate	Glyceryl diisostearate, G. stearate SE	Surfactant agent
Ethoxydiglycol	Glyceryl mono-di-tri-caprylate	Linoleamide DEA
Ethyl acetate, E. lactate	Hydrogenated coco-glycerides	PEG-20 almond glycerides
Ethyl myristate, E. oleate	Hydrogenated C12-18 triglycerides	PEG-60 lanolin
2-Ethylhexyl isostearate	Hydrogenated tallow glycerides	PEG-75 lanolin
Glycerin	Hydrolyzed oat flour	
Glycofurool	Hydroxycicosanyl hydroxystearate	
Heptane	Karaya (<i>Sterculia urens</i>) gum	
Hexyl alcohol	Laureth-3	Surfactant
Hexylene glycol	Maltitol	Alkyl dimethyl betaine
Isobutyl stearate	Methylated cyclodextrin	Alkyldimethylamine oxide
Isocetyl salicylate	Oleamide	Ammonium cocoyl sarcosinate
Isodecyl benzoate, I. isononanoate	PEG-40 stearate	Ammonium C12-15 alkyl sulfate
Isodecyl octanoate, I. oleate	PEG-40/dodecyl glycol copolymer	Ammonium dimethicone copolyol sulfate
Isododecane	Perfluoropolymethylisopropyl ether	Ammonium laureth-5 sulfate
Isoeicosane	Polyethylene paste	Ammonium laureth-12 sulfate
Isohexadecane	PPG-5 lanolin wax	Ammonium lauryl sulfate
Isopropyl alcohol, I. myristate	PPG-7-buteht-10	Ammonium lauroyl sarcosinate
Isostearyl stearoyl stearate	PPG-10 cetyl ether phosphate	Ammonium lauryl sulfate, A. I. sulfosuccinate
Laureth-2 acetate	Propylene carbonate, P. glycol alginate	Ammonium myreth sulfate
Metoxydiglycol	PVM/MA decadiene crosspolymer	Ammonium nooxynol 4 sulfate
Methoxvisopropanol	Sodium acrylates/vinyl isodecanoate crosspolymer	Azelamide MEA
Methyl alcohol	Sodium carboxomer	C20-40 alcohol ethoxylate
Methyl propanediol	Sorbitan laurate	C30-50 alcohol ethoxylate
Methylene chloride	Stearic hydrazide	C40-60 alcohol ethoxylate
MEK	2,2',4,4'-Tetrahydroxybenzophenone	Calcium dodecybenzene sulfonate
MIBK	Tricaprin	Calcium laurate
Morpholine	Tricaprylin	Ceteareth-2 phosphate
Octyl benzoate, O. isononanoate	Trilaurin	Ceteareth-5 phosphate
Octyl laurate, O. palmitate	Trimyratin	Ceteareth-10 phosphate
Octyldodecyl lactate	Triplamitin	Ceteareth-25
Olive oil PEG-6 esters	Tristearin	Cetyl betaine, C. phosphate
Peanut oil PEG-6 esters		Cocamide MEA ethoxylate
Pentane		Cocamidopropyl betaine, potassium salt
Petroleum distillates		Cocamidopropyl betaine ammonium salt
PEG-6 methyl ether		Cocamidopropyl hydroxy sultaine
PEG-12		Cocamidopropyl hydroxy sultaine, ammonium salt
PEG-20 hydrogenated castor oil		Cocamidopropyl hydroxy sultaine, potassium salt
PEG-33 castor oil		Cocamidopropylamine oxide
PEG-50 glyceryl cocoate		Cocet-7 carboxylic acid
Polyglyceryl-2 dioleate		Coco-glucoside
Polyglyceryl-3 diisostearate		Cocoamphodiacetate lauryl-laureth sulfate
Polyoxyethylene glycol dibenzoate		Cocoamphodiacetate lauryl sulfate
Polypropylene glycol dibenzoate		Cocoamphodiacetate trideceth sulfate
PPG-2 myristyl ether propionate		Coco phosphatidyl PG-dimonium chloride
PPG-3		N-Cocoyl-(3-amidopropyl)-N,N-dimethyl-N-ethyl ammonium ethyl sulfate
PPG-20 lanolin alcohol ether		Cocoyl glutamic acid
Propyl alcohol		Cocoyl hydrolyzed soy protein
Propylene carbonate		Cocoyl hydroxethyl imidazoline
Propylene glycol		C11-15 pareth-9, -12, -20, -30, -40
Propylene glycol dibenzoate		C12-15 pareth sulfate
Propylene glycol methyl ether		C12-13 pareth-5 carboxylic acid
Propylene glycol myristate		C12-15 pareth-12
Pyridine		C14-15 pareth-8 carboxylic acid
Sesame (<i>Sesamum indicum</i>) oil		DEA-olet-5-phosphate
Stearyl heptanoate		DEA-olet-20-phosphate
Toluene		Deceth-3, -6, -8
Xylene		Decyltetradeceth-25
SPF booster		Diceteareth-10 phosphoric acid
Borjoa sorbilis extract		Dimethicone copolyol
Isohexadecyl salicylate		Dimethicone copolyol almondate, D. c. isostearate
Styrene/acrylates copolymer		Dimethicone copolyol laurate, D. c. olivate
Titanium dioxide		Dimethicone copolyol phthalate
Yeast (<i>Saccharomyces cerevisiae</i>) extract (Faex)		Dimethicone copolyolamine
Stabilizer		Dimethicone propyl PG-betaine
Acrylates-VA crosspolymer		Diocryldodeceth-2 lauroyl glutamate
Acrylates/ceteth-20 methacrylates copolymer		Diocryldodeceth-5 lauroyl glutamate
Acrylates/steareth-20 methacrylate copolymer		Diocryldodecyl lauroyl glutamate
Acrylates/vinyl isodecanoate crosspolymer		Disodium caprylicaproyl diacetate
Alkyldimethylamine oxide		Disodium cocoamphodiacetate
C10 polycarbamyl polyglycol ester		Disodium hydrogenated tallow glutamate
Calcium alginate		Disodium laneth-5 sulfosuccinate
Cocamidopropyl dimethylamine lactate		Disodium lauramido MEA-sulfosuccinate
Cocamine oxide		Disodium laureth sulfosuccinate
Colloidal silica sols		Disodium oleamido MIPA-sulfosuccinate
Cyclodextrin		Disodium oleamido PEG-2 sulfosuccinate
Disodium EDTA		Disodium oleth-3 sulfosuccinate
Gellan gum		Disodium ricinoleamido MEA-sulfosuccinate
		Disodium tallamido MEA-sulfosuccinate
		Disosteareth-2 lauroyl glutamate

Functions

Distearin-5 lauroyl glutamate	PEG-80 jojoba oil. P. sorbitan laurate	Sodium lauroyl glutamate
Ethoxylated fatty alcohol	PEG-120 jojoba oil	Sodium lauroyl hydrolyzed collagen
Ethoxylated glycerol sorbitan saturated fatty acid ester	Pentasodium triphosphate	Sodium lauroyl sarcosinate. S. I. laurate
Ethoxylated glycerol sorbitan unsaturated fatty acid ester	Poloxamer 101. 122	Sodium magnesium laureth sulfate
Glycerin-25 PCA isostearate	Polyglyceryl-2 dioleate	Sodium metnyl cocoyl laurate
Glycerin-26 phosphate	Polyisoxane-polyether copolymer	Sodium metnyl oleoyl laurate
Glyceryl hydroxystearate	Potassium cocoyl glycinate	Sodium myristoyl glutamate
Hydrogenated tallowyl glutamic acid	Potassium cocoyl hydrolyzed collagen	Sodium myristoyl hydrolyzed collagen
Isopropyl hydroxybutyramide dimethicone copolyol	Potassium C9-15 phosphate ester	Sodium myristoyl sarcosinate
Laureamidopropyl betaine	Potassium lauroyl hydrolyzed collagen	Sodium myristyl sulfate
Laureth-1. -2. -3. -4. -7. -12. -16	Potassium lauryl sulfate	Sodium nonoxynol-6 phosphate
Laureth-3 carboxylic acid. L. phosphat	Potassium myristoyl hydrolyzed collagen	Sodium octoxynol-2 ethane sulfonate
Laureth-5 carboxylic acid	Potassium oleoyl hydrolyzed collagen	Sodium octyl sulfate
Laureth-11 carboxylic acid	Potassium palmitate	Sodium oleoyl hydrolyzed collagen
Lauroyl sarcosine	Potassium undecenyl hydrolyzed collagen	Sodium stearoyl hydrolyzed collagen
Lauryl dimethylamine cyclocarboxypropylolate	PPG-2-isodeceth-4 -6 -9 -12	Sodium trideceth sulfate
Lauryl hydroxyethyl imidazoline	PPG-6 C12-18 pareth-11	Sodium undecenyl hydrolyzed collagen
Linoleamide DEA	Protein hydrovisates	Sodium/TEA-lauroyl hydrolyzed collagen
Magnesium laureth-8 sulfate	Quaternium-80	Sodium/TEA-lauroyl hydrolyzed keratin
Meroxapol 105. 171. 172	Quillaja saponaria extract	Sorbitan isostearate
MEA-lauryl sulfate	Raffinose laurate. R. myristate. R. oleate	Stearoyl sarcosine
Mixed isopropanolamines myristate	Raffinose palmitate. R. stearate	Sulfated castor oil
Myreth-7	Ricinoleamidopropyl betaine	TEA-cocoyl glutamate
Myristoyl sarcosine	Silicone quaternium-1. -8. -9	TEA-cocoyl hydrolyzed collagen
Mynstyl alconci	Sodium alpha olein sulfonate	TEA-cocoyl hydrolyzed soy protein
Nonoxynol-7. -9. -13. -15	Sodium cocomphoacetate	TEA-C12-15 alkyl sulfate
Nonoxynol-10 carboxylic acid	Sodium cocoyl hydrolyzed wheat protein	TEA-hydrogenated tallow glutamate
Octoxynol-10. -12	Sodium cocoyl isethionate	TEA-lauroyl glutamate
Octyldodeceth-10. -16	Sodium C12-13 sulfate	TEA-lauroyl keratin amino acids
Oleoyl sarcosine	Sodium C12-14 pareth-2 sulfate	TEA-lauroyl sarcosinate
Oleth-2 phosphate	Sodium C12-15 pareth-3 sulfonate	TEA-lauryl sulfate
Oleth-5 phosphate	Sodium C12-15 pareth-7 carboxylate	TEA-myristoyl hydrolyzed collagen
Oleyl betaine	Sodium C12-15 pareth-7 sulfonate	Tocophereth-5 -10 -18 -20 -30 -50 -70
Oleyl hydroxyethyl imidazoline	Sodium C12-15 pareth-8 carboxylate	Trideceth-7 carboxylic acid
Palmitamine oxide	Sodium C12-15 pareth-15 sulfonate	Trideceth-9
Palmitoyl betaine	Sodium C12-18 alkyl sulfate	Trideceth-19-carboxylic acid
PCA ethyl cocoyl arginate	Sodium C13-17 alkane sulfonate	Tridecyi ethoxylate
PEG-7 hydrogenated castor oil	Sodium C14-16 olein sulfonate	Triethanolamine C10-14 sulfate
PEG-8 caprylic/capric glycerides	Sodium cetyl sulfate	Triauryl phosphate
PEG-8 laurate	Sodium coco-tallow sulfate	Wheat germamidopropyl betaine
PEG-8 stearate	Sodium cocoyl glutamate	Yucca vera extract
PEG-15 glyceryl stearate	Sodium cocoyl hydrolyzed collagen	
PEG-25 glyceryl isostearate	Sodium cocoyl hydrolyzed soy protein	
PEG-27 lanolin	Sodium cocoyl sarcosinate	
PEG-30 lanolin	Sodium dimethicone copolyol acetyl methylaurate	
PEG-40 castor oil	Sodium hydrogenated tallow glutamate	
PEG-40 glyceryl stearate	Sodium isodecyl sulfate	
PEG-40 jojoba oil. P. lanolin	Sodium laureth-5 carboxylate	
PEG-60 glyceryl isostearate. P. g. stearate	Sodium laureth-11 carboxylate	
	Sodium laureth-13-carboxylate	
	Sodium laureth sulfate	
	Sodium lauroamphoacetate	

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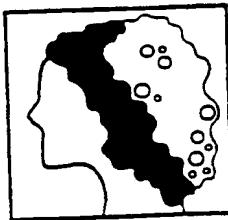
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Functions

Dihydrogenated tallow phthalic acid amide	Calcium alginate	MDM hydantoin
Distearyl phthalic acid amide	Calcium carrageenan	Metylcellulose
Guar (<i>Cyanopsis tetragonoloba</i>) gum	Caprylic alcohol	Montmorillonite
Hectorite	Carbomer	Myristamide DEA, M. MEA
Hydroxypropylcellulose	Carboxymethyl hydroxyethylcellulose	Myristamine oxide
Isobutylene/MA copolymer	Carrageenan (<i>Chondrus crispus</i>)	Myristyl alcohol
Magnesium aluminum silicate	Cellulose, C. gum	Octacosanyl stearate
Methylcellulose	Cetearyl alcohol, C. behenate	Oleamide, O. DEA, O. MEA
Pentasodium triphosphate	Cetearyl octanoate, C. stearate	Palmitamide MEA
Polyethylene, P. micronized	Cetostearyl stearate	Pectin
Propylene glycol alginate	Cetyl alcohol	PEG-2 laurate
Quaternium-18 bentonite	Cetyl hydroxyethylcellulose	PEG-3 distearate, P. lauramide
Quaternium-18 hectorite	Cetyl myristate, C. palmitate	PEG-3 lauramine oxide
Sodium magnesium silicate	Cocamide	PEG-4 diisostearate, P. oleamide
Sodium poly(naphthalenesulfonate)	Cocamide MEA, C. MIPA	PEG-5M
Stearalkonium bentonite, S. hectorite	Cocamidopropylamine oxide	PEG-6 beeswax
Steareth-10 allyl ether/acrylates copolymer	Coco-betaine	PEG-7 hydrogenated castor oil
Tragacanth (<i>Astragalus gummifer</i>) gum	Coco-rapeseedate	PEG-8
Triethylenn	Coco/oleinamidopropyl betaine	PEG-8 dioleate, P. distearate
Trihydroxystearin	Cocoyl amino hydroxy suido betaine	PEG-8 stearate
Tromethamine magnesium aluminum silicate	Cocoyl monoethanolamide ethoxylate	PEG-9M
Xanthan gum	Colloidal silica soils	PEG-12 beeswax
Sweetener	DEA-hydroxylated lecithin	PEG-18 glyceryl oleate/cocoate
Calcium saccharin	DEA-linoleate	PEG-23M
Fructose	DEA-oieh-3 phosphate	PEG-28 glyceryl tallowate
Glycyrrhetic acid	DEA oieh-10 phosphate	PEG-40 jojoba oil
Glycyrrhetic acid	Decyl alcohol	PEG-45M
Glycyrrhizin, ammoniated	Dextran	PEG-50 tallow amide
Hydroxyd corn starch	Dextrin	PEG-55 propylene glycol oleate
Lactose	Dilaureth-10 phosphate	PEG-75 stearate
Maltitol	Dioleth-8 phosphate	PEG-90M
Mannitol	DNHF	PEG-100 stearate
Saccharin	Ethoxylated fatty alcohol	PEG-120 methyl glucose dioleate
Sodium saccharin	Gellan gum	PEG-150 distearate
Sorbitol	Glycerol behenate, G. stearate	PEG-150 pentaerythritol tetraslareate
Sucrose	Glycerol polymethacrylate	PEG-160M
Tanning accelerator	Guar (<i>Cyanopsis tetragonoloba</i>) gum	PEG-200 glyceryl stearate
Acetyl tyrosine	Guar hydroxypropyltrimonium chloride	PEG-200 glyceryl tallowate
Carrot (<i>Daucus carota</i>) extract	Hectorite	Pentaerythritol tetrabehenate
Copper acetyl tyrosinate methylsilanol	Hexyl alcohol	Pentaerythritol tetrastearate
Dihydroxyacetone	Hydrated silica	Poloxamer 105, 124, 185, 237, 238, 338, 407
Disodium methyl tyrosinate	Hydrogenated rapeseed oil	Polyacrylic acid
Ecipol alba extract in white emulsion	Hydrogenated starch hydrolysate	Polysorbate 20
Glucose tyrosinate	Hydrogenated talloweth-60 myristyl glycol	Potassium alginate, P. chloride
Thickener	Hydrolyzed oat flour	Potassium oleate, P. stearate
Acrylate-C crosspolymer	Hydrolyzed transgenic collagen	PPG-5-ceteth-10 phosphate
Acrylate/C10-C30 alkyl acrylate crosspolymer	Hydroxyethylcellulose	Propylene glycol stearate
Acrylate/ceteth-20 itaconate copolymer	Hydroxypropyl chitosan	PVM/MA decadiene crosspolymer
Acrylate/ceteth-20 methacrylates copolymer	Hydroxypropyl guar	PVP
Acrylate/ceteth-20 itaconate copolymer	Hydroxypropyl methicellulose	Quaternium-18 bentonite
Acrylate/ceteth-20 methacrylate copolymer	Hydroxypropylcellulose	Quaternium-18 hectorite
Acrylate/ceteth-50 acrylate copolymer	Isoceteth-10	Rapeseed oil, ethoxylated high erucic acid
Acrylate/vinyl isodecanoate crosspolymer	Isocetaramide DEA	Ricinoineamide MEA
Acrylic acid/acrylonitrogen copolymer	Isocetaramidopropylamine oxide	Sesamide DEA
Alginate	Isocetaramopropionate	Sodium acrylates/vinyl isodecanoate crosspolymer
Aluminum/magnesium hydroxide stearate	Japonic wax	Sodium carbomer, S. carrageenan
Ammonium acrylates/acrylonitrogen copolymer	Isostearyl DEA, L. MEA, L. MIPA	Sodium ceteht-13-carboxylate
Ammonium alginate	Isostearyl betaine	Sodium chloride
Arachidyl alcohol	Isostearyl-10	Sodium magnesium silicate, S. stearate
Behenic acid	Isostearyl linoleic DEA	Sorbitan sesquisostearate, S. tristearate
Behenyl alcohol, B. behenate	Isostearyl linoleyl diethanolamide	Soyamide DEA
Bentonite	Isostearyl myristoyl diethanolamide	Soyamidopropyl betaine
C10 polycarbamyl polyglycol ester	Isostearyl alcohol, L. betaine	Starch polyacrylonitrile copolymer-potassium salt
C12-15 alcohols	Isostearyl DEA, L. MEA	Starch polyacrylonitrile copolymer-sodium salt
C12-16 alcohols	Isostearyl acid	Stearalkonium bentonite, S. hectorite
C18-36 acid	Isostearyl bean (<i>Ceratonia siliqua</i>) gum	Stearamide
	Isostearyl aluminum silicate	Stearamide DEA, S. MEA, S. MEA-stearate
		Stearamidopropyl dimethylamine lactate
		Stearamine oxide

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Steareth-10 allyl ether/acrylates copolymer	Gold of pleasure oil	Ceresin
Stearic acid	Grape (Vitis vinifera) seed oil	Cetyl dimethicone, C. isoctanoate
Stearyl alcohol	Hazel (Corylus avellana) nut oil	Dialkydimethylpolysiloxane
Synthetic beeswax	Hybrid sunflower (Helianthus annuus) oil	Dimethiconol hydroxystearate
Tallowamide MEA	Hydrogenated coconut oil	Dimethiconol stearate
TEA-acrylates/acrylonitrile copolymer	Hydrogenated cottonseed oil	Hydrogenated castor oil
Tragacanth (Astragalus gummifer) gum	Hydrogenated vegetable oil	Hydrogenated jojoba oil, H. j. wax
Tribenenin	Jojoba (Buxus chinensis) oil	Hydrogenated palm kernel oil
Trihydroxystearin	Kukui (Aleurites moluccana) nut oil	Hydrogenated rapeseed oil
Tromethamine magnesium aluminum silicate	Macadamia ternifolia nut oil	Hydrogenated rice bran wax
Wheat germamide DEA	Meadowfoam (Limnanthes alba) seed oil	Hydrogenated vegetable oil
Wheat germamidopropyl betaine	Mexican poppy oil	Isooctadecyl isononanoate
Xanthan gum	Palm (Elaeis guineensis) kernel oil	Japan (Rhus succedanea) wax
Thixotrope	Partially hydrogenated soybean oil	Jojoba esters
Bentonite	Peach (Prunus persica) kernel oil	Montan (Montan cera) wax
Hectorite	Peanut (Arachis hypogaea) oil	Ourycur wax
Sodium magnesium silicate	Pecan (Carya illinoensis) oil	Ozokerite
Stearalkonium bentonite	Pumpkin (Cucurbita pepo) seed oil	Polyglyceryl-3 beeswax
Toner	Quinoa (Chenopodium quinoa) oil	Spermaceti
Althea officinalis extract	Rapeseed (Brassica campestris) oil	Stearoxydimethicone/dimethicone copolymer
Clover (Trifolium pratense) extract	Rice (Oryza sativa) bran oil	Stearoxydimethylsilane
Dog rose (Rosa canina) hips extract	Safflower (Carthamus tinctorius) oil	Synthetic candelilla wax
Ginseng (Panax ginseng) extract	Seabuckthorn oil	Synthetic carnauba
Horseail extract	Sesame (Sesamum indicum) oil	
Lemon bioflauonoids extract	Sisymbrium irio oil	
Meadowsweet (Spiraea ulmaria) extract	Soybean (Glycine soja) oil	
Nettle (Urtica dioica) extract	Sunflower (Helianthus annuus) seed oil	
Rose (Rosa multiflora) extract	Walnut (Juglans regia) oil	
Rosemary (Rosmarinus officinalis) extract	Wheat (Triticum vulgare) germ oil	
UVA absorber	Wild borage oil	
Benzoprenone-1, -2, -3, -4, -6, -8, -9, -11, -12	Vitamin	
Butyl methoxydibenzoylmethane	Aesculus chinensis extract	
Corallina officinalis	Ascorbic acid	
Isopropyl dibenzoylmethane	Ascorbic acid polypeptide	
Menthyl anthranilate	Ascorbyl palmitate	
2,2',4,4'-Tetrahydroxybenzophenone	Biotin	
Titanium dioxide	Calcium pantothenate	
Zinc oxide	Cholecalciferol	
UVB absorber	Cyanocobalamin	
Argania spinosa oil	Eclipta alba extract	
Benzoprenone-1, -2, -3, -4, -6, -9, -11	Emblica officinalis extract	
Corallina officinalis	Equisetum arvense extract	
DEA-methoxycinnamate	Ergocalciferol	
Drometrizole	Esculin	
Ethyl dihydroxypropyl PABA	Ethyl linoleate	
Etocrylene	Folic acid	
Homosalate	Laminaria japonica extract	
Isoamyl p-methoxycinnamate	Marsilea minuta extract	
Isopropyl methoxycinnamate	Melaiecia bracteata extract	
Isopropylbenzyl salicylate	Menadione	
4-Methylbenzylidene camphor	Nasturtium sinensis extract	
Octocrylene	Neiumbium speciosum extract	
Octrizole	Niacin	
Octyl dimethyl PABA	Niacinamide, N. ascorbate	
Octyl methoxycinnamate	Nicotinamide	
Octyl salicylate, O. triazone	Nicotinic acid	
PABA	Ocimum basilicum extract	
PEG-25 PABA	Panthenyl triacetate	
Phenylbenzimidazole sulfonic acid	Pantothenic acid	
Shea butter, ethoxylated	Phytanadione	
TEA-salicylate	Pyridoxine HCl	
Titanium dioxide	Retinol	
TriPABA panthenol	Retinyl acetate, R. palmitate	
Zinc oxide	Retinyl palmitate polypeptide	
Vegetable oil	Retinyl propionate	
Apricot (Prunus armeniaca) kernel oil	Riboflavin tetraacetate	
Avocado (Persea gratissima) oil	Sodium ascorbate	
Baobab oil	Thiamine HCl	
Calendula officinalis oil	Tocopherol	
Chaulmoogra (Tarakogenos kurzii) oil	Tocopheryl acetate, T. succinate	
Coconut (Cocos nucifera) oil	Wax	
Corn (Zea mays) oil	Bayberry (Myrica cerifera) wax	
Cottonseed (Gossypium) oil	Behenoxv dmethicone	
	C16-18 alkyl methicone	
	Candelilla (Euphorbia cerifera) wax	
	Carnauba (Copernicia cerifera) wax	

Claims:

1. A cosmetic composition, comprising:

10 a cosmetically acceptable carrier, comprising a reverse thermal viscosifying polymer network comprising at least one poloxamer component randomly bonded to at least one poly(acrylic acid) component said polymer network capable of aggregation in response to a change in temperature; and

15 a cosmetically active agent which imparts a preselected cosmetic effect, said carrier and said agent disposed within an aqueous-based medium.

2. A cosmetic composition for topical application, comprising:

20 a cosmetically acceptable carrier, comprising a reverse thermal viscosifying polymer network comprising at least one poloxamer component capable of aggregation in response to a change in temperature randomly bonded to at least one poly(acrylic acid) component; and

25 a cosmetically active agent selected to treat imperfections or disorders of the skin. said carrier and said agent disposed within an aqueous-based medium.

3. The cosmetic composition of claim 1, wherein the cosmetic composition is a shampoo and the cosmetically active agent comprises a cleansing surfactant.

20

4. The cosmetic composition of claim 1, wherein the cosmetic composition is a moisturizer and the cosmetically active agent comprises a moisturizer.

25

5. The cosmetic composition of claim 1, wherein the cosmetic composition is a sunscreen and the cosmetically active agent comprises a uv-absorbing agent.

6. The cosmetic composition of claim 1, wherein the cosmetic composition is an acne cream and the cosmetically active agent comprises an antiacne agent.

5 7. The cosmetic composition of claim 1, wherein the cosmetic composition is a hair straightener and the cosmetic agent comprises a base for increasing the pH.

10 8. The cosmetic composition of claim 1, wherein the cosmetic composition is a sunless tanning lotion and the cosmetically active agent comprises skin tinting agent.

15 9. The cosmetic composition of claim 1, wherein the cosmetic composition is an antiperspirant and the cosmetically active agent comprises aluminum chlorhydrate.

10. The cosmetic composition of claim 1, wherein the cosmetic composition is a shaving cream and the cosmetically active agent comprises an emollient and a foaming surfactant.

20 11. The cosmetic composition of claim 1, wherein the cosmetic composition is a face cosmetic and the cosmetically active agent comprises a pigment.

25 12. The cosmetic composition of claim 1 or 2, wherein the cosmetic agent comprises a hydrophobic material, wherein the cosmetically acceptable carrier stabilizes the hydrophobic material in the aqueous medium.

13. The cosmetic composition of claim 2, wherein said cosmetic agent selected to treat imperfections or disorders of the skin is selected from the group consisting of acidulents, antiacne agents, anti-aging agents, anti-inflammatories, anti-irritants, antioxidants, depilatories, detergents, disinfectants, emollients, exfoliants, 5 humectants, lubricants, moisturizers, skin conditioners, skin protectants, skin lightening agents, skin soothing agents sunscreening agents and tanning accelerators and mixtures thereof.

10 14. The composition of claim 4, wherein said composition further comprises a cosmetic agent selected from the group consisting of humectants and emollients.

15 15. The composition of claim 1 or 2, further comprising one or more additives selected from the group consisting of preservatives, abrasives, acidulents, antiacne agents, anti-aging agents, antibacterials, anticaking, anticaries agents, anticellulites, antidandruff, antifungal, anti-inflammatories, anti-irritants, antimicrobials, 20 antioxidants, astringents, antiperspirants, antiseptics, antistatic agents, antringents, binders, buffers, additional carriers, chelators, cell stimulants, cleansing agents, conditioners, deodorants, dipilatories, detergents, dispersants, emollients, emulsifiers, enzymes, essential oils, exfoliants, fibers, film forming agents, fixatives, foaming agents, foam stabilizers, foam boosters, fungicides, gellants, glosses, hair conditioner, hair set resins, hair sheen agents, hair waving agents, humectants, lubricants, moisture barrier agents, moisturizers, ointment bases, opacifier, plasticizer, polish, polymers, powders, propellant, protein, refatting agents, sequestrant, silicones, skin calming 25 agents, skin cleansers, skin conditioners, skin healing, skin lightening agents, skin protectants, skin smoothing agents, skin softening agents, skin soothing agents, stabilizers, sunscreen agents, surfactants, suspending agents, tanning accelerators, thickeners, vitamins, waxes, wetting agents, liquefiers, colors, flavors and/or fragrances

16. The composition of claim 1, wherein the cosmetic composition takes a form selected from the group consisting of lotions, creams, sticks, roll-on formulations, mousses, sprays, aerosols, pad-applied formulations and masks.

5 17. The composition of claim 1, wherein the viscosification occurs at a temperature in the range of about 27 to 40°C.

10 18. The composition of claim 1, wherein the viscosification occurs at a temperature in the range of about 30 to 37°C.

19. The composition of claim 1, wherein said composition is formulated as a product selected from the group consisting of baby products, baby shampoos, lotions, powders and creams; bath preparations, bath oils, tablets and salts, bubble baths, bath fragrances, bath capsules; eye makeup preparations, eyebrow pencil, eyeliner, eye shadow, eye lotion, eye makeup remover, mascara; fragrance preparations, colognes, toilet waters, powders and sachets; noncoloring hair preparations, hair conditioner, hair spray, hair straighteners, permanent waves, rinses, shampoos, tonics, dressings and other grooming aids; color cosmetics; hair coloring preparations, hair dye, hair tints, hair color sprays, hair lighteners and hair bleaches; makeup preparations, face powders, foundations, leg and body paints, lipstick makeup bases, rouges and makeup fixatives; manicuring preparations, basecoats, undercoats, cuticle softeners, nail creams, nail extenders, nail polish and enamel, and remover; oral hygiene products, dentrifices, mouthwashes; personal cleanliness, bath soaps, detergents, deodorants, douches and feminine hygiene product; shaving preparations, aftershave lotion, beard softeners, men's talcum, shaving cream, shaving soap, preshave lotions; skin care preparations, skin cleansing preparations, skin antiseptics, depilatories, face and neck cleansers, body and hand cleansers, foot powders; moisturizers, night preparations, paste masks, skin fresheners; and suntan preparations, suntan creams, gels and lotions, and indoor tanning preparations.

20. The cosmetic composition of claim 1 or 2, wherein the poloxamer component is present in an amount in the range of about 0.01 to 20 wt% and the poly(acrylic acid component) is present in the amount of about 0.01 to 20 wt%.

5 21. The cosmetic composition of claim 1, wherein the polymer network comprises a plurality of poloxamers.

10 22. The cosmetic composition of claim 1, wherein the polymer network comprises a plurality of poloxamer components randomly bonded to a poly(acrylic acid) backbone.

15 23. The cosmetic composition of claim 1, wherein the reversibly viscosifying polymer composition comprises a plurality of poly(acrylic acid) components randomly bonded to a poloxamer component.

20 24. The cosmetic composition of claim 1, wherein the aqueous-based medium is selected from the group consisting of water, salt solutions and water with water-miscible organic compound(s).

25 25. The cosmetic composition of claim 1, further comprising an additive selected to increase transition temperature and increase viscosity of the reversible viscosifying polymer network.

25 26. The cosmetic composition of claim 1, further comprising an additive selected to increase transition temperature and decrease viscosity of the reversible viscosifying polymer network.

27. The cosmetic composition of claim 1, further comprising an additive selected to increase transition temperature without affecting viscosity of the reversible viscosifying polymer network..

5 28. The cosmetic composition of claim 1, further comprising an additive selected to decrease transition temperature and increase viscosity of the reversible viscosifying polymer network.

10 29. The cosmetic composition of claim 1, further comprising an additive selected to decrease transition temperature and decrease viscosity of the reversible viscosifying polymer network.

15 30. The cosmetic composition of claim 1, further comprising an additive selected to decrease transition temperature without affecting viscosity of the reversible viscosifying polymer network.

20 31. The cosmetic composition of claim 1, further comprising an additive selected to increase viscosity without affecting transition temperature of the reversible viscosifying polymer network.

32. The cosmetic composition of claim 1, further comprising an additive selected to decrease viscosity without affecting transition temperature of the reversible viscosifying polymer network.

25 33. The cosmetic composition of claim 1 or 2, characterized in that the gel remains translucent to light before and after response to the environmental stimulus.

34. The cosmetic composition of claim 1, wherein the poly(acrylic acid) is branched.

35. Method of making an cosmetic composition, comprising:

5 dissolving a poloxamer capable of aggregation in response to a change in temperature in acrylic acid monomer;

initiating polymerization of the monomer to form a poly(acrylic acid) randomly bonded to the poloxamer, so as to form a reversibly viscosifying polymer composition;

10 mixing the reversibly gelling polymer compositions with a cosmetic agent which imparts a desired cosmetic effect to the composition.

36. The method of claim 36, wherein a polymerization initiator is selected to provide the polymer network having a selected temperature of viscosification.

15

37. The method of claim 36, wherein one or more poloxamers are added.

38. The cosmetic composition of claim 1, wherein the reversibly viscosifying polymer network is present in an amount in the range of 0.01% - 10%.

20

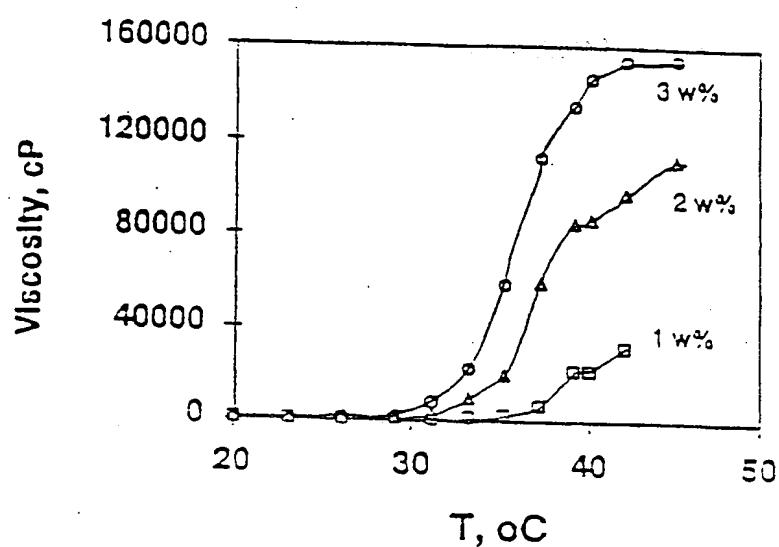


Figure 1.

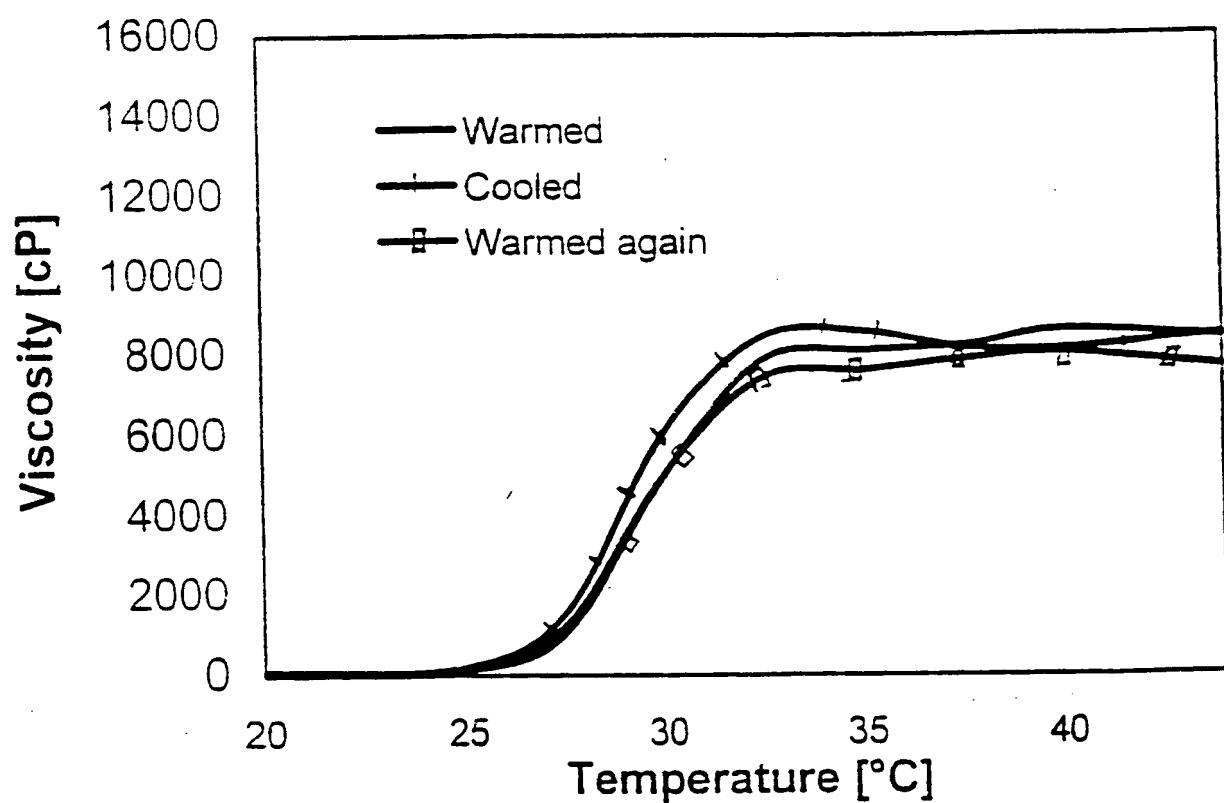


Figure 2

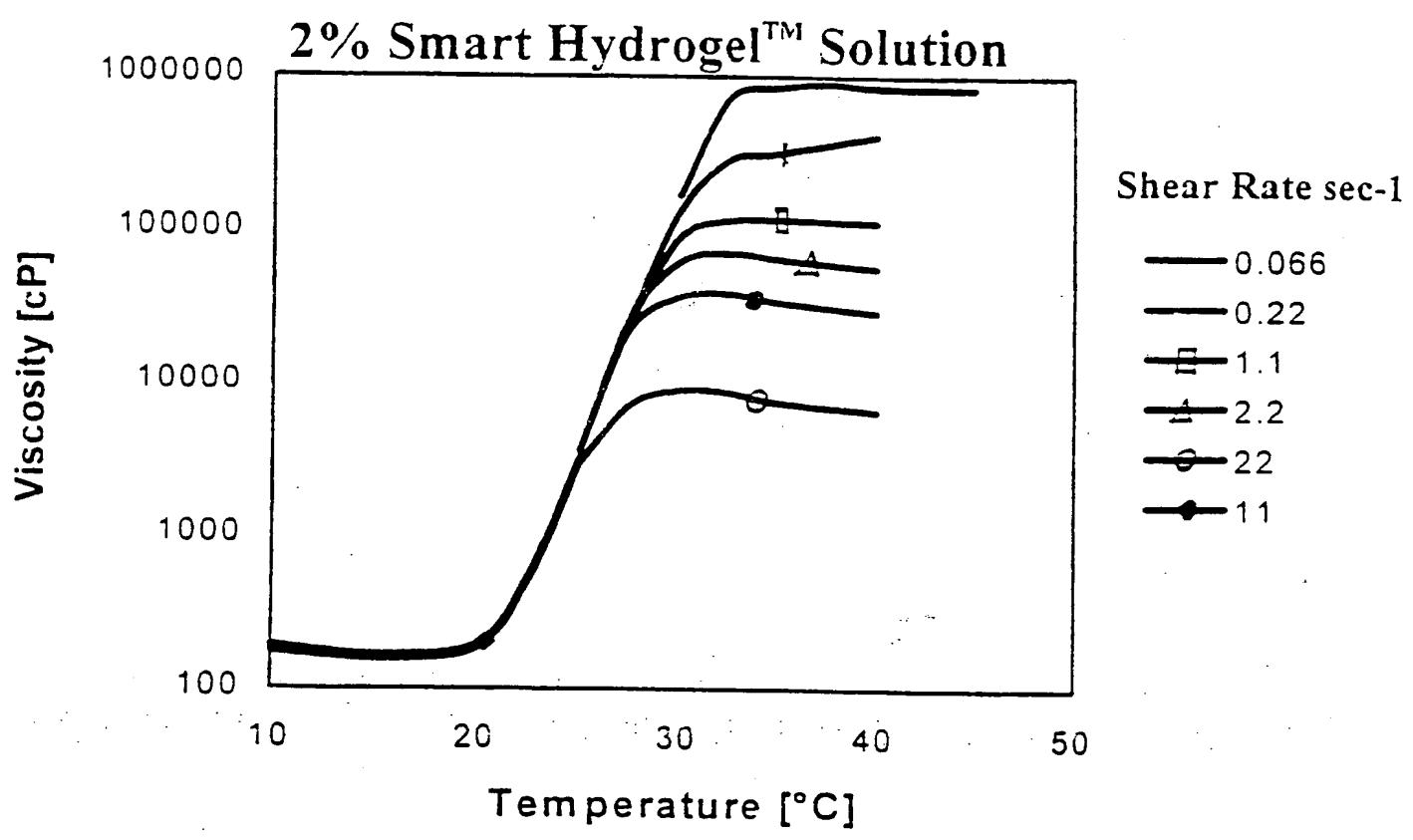


Figure 3

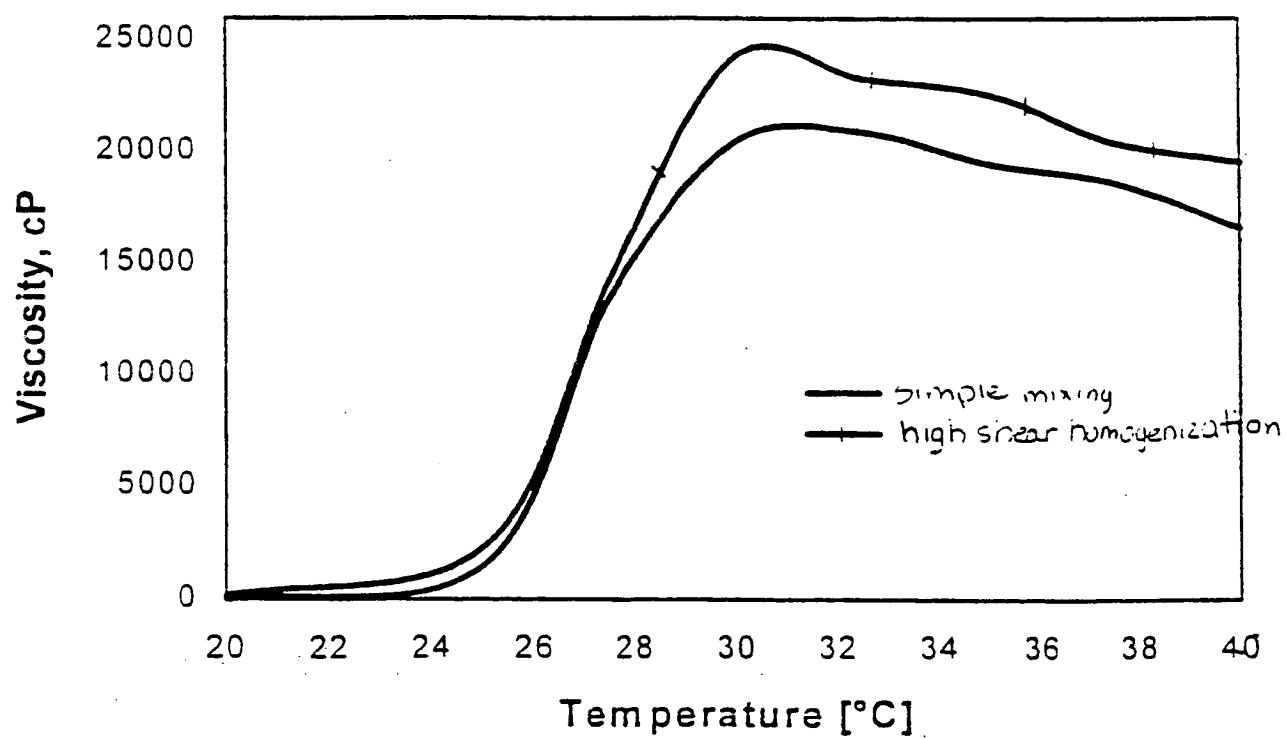


Figure 4

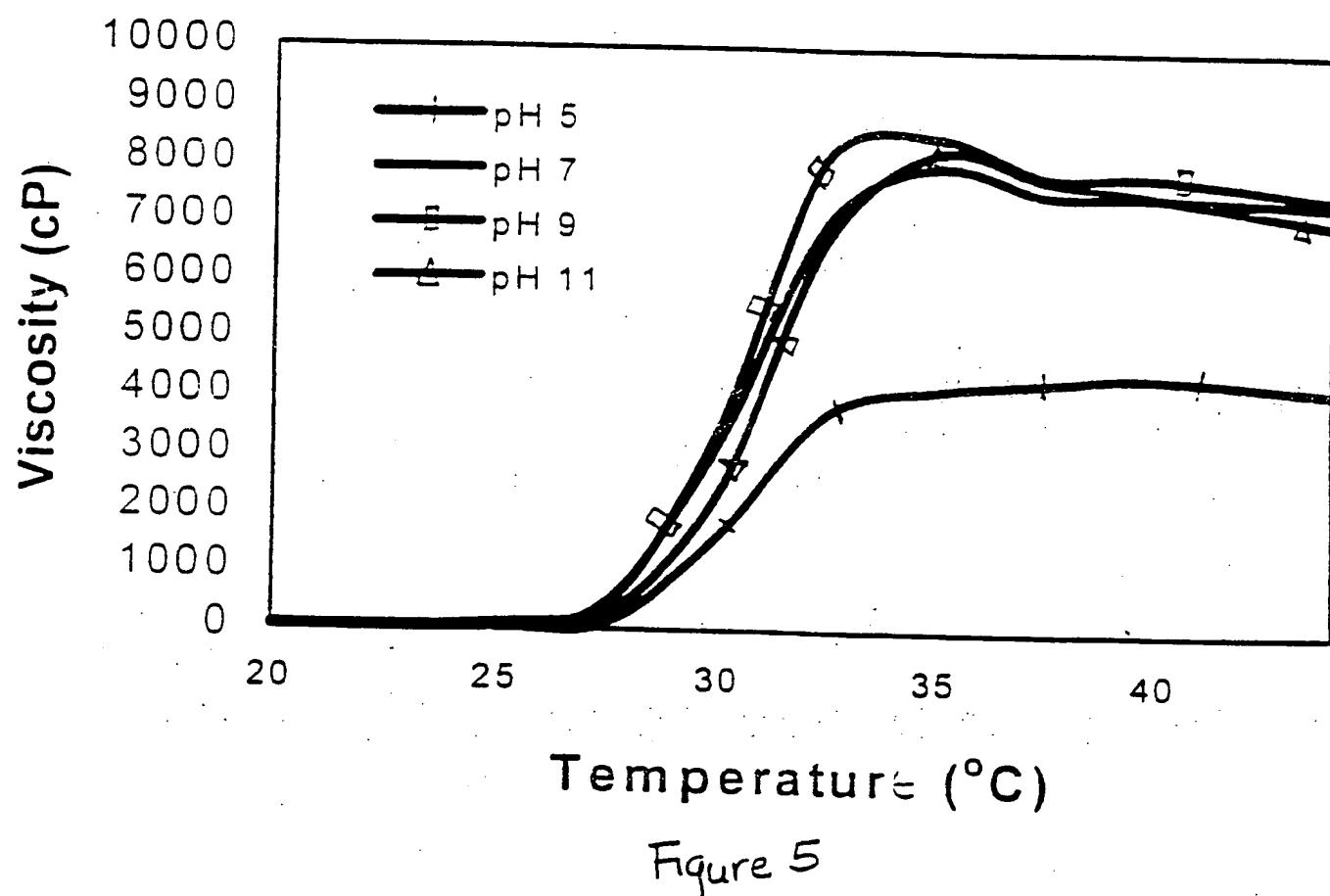


Figure 5

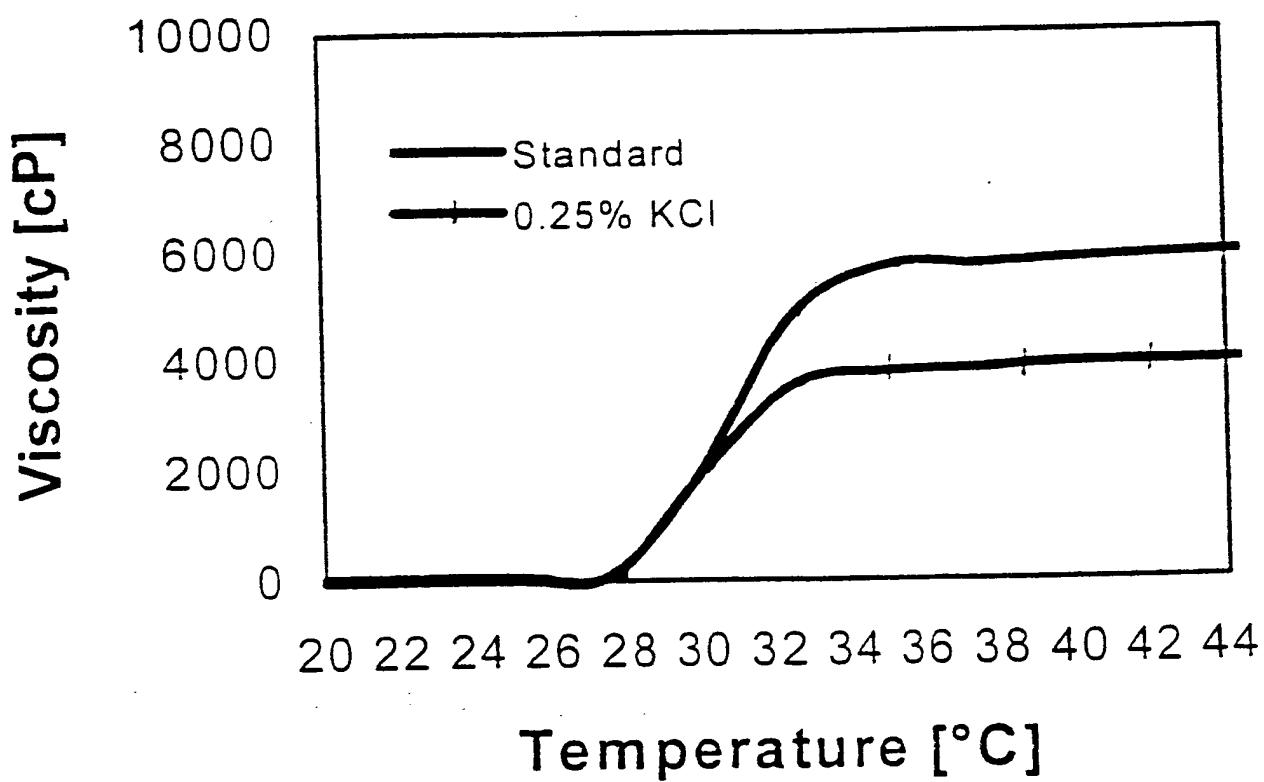


Figure 6

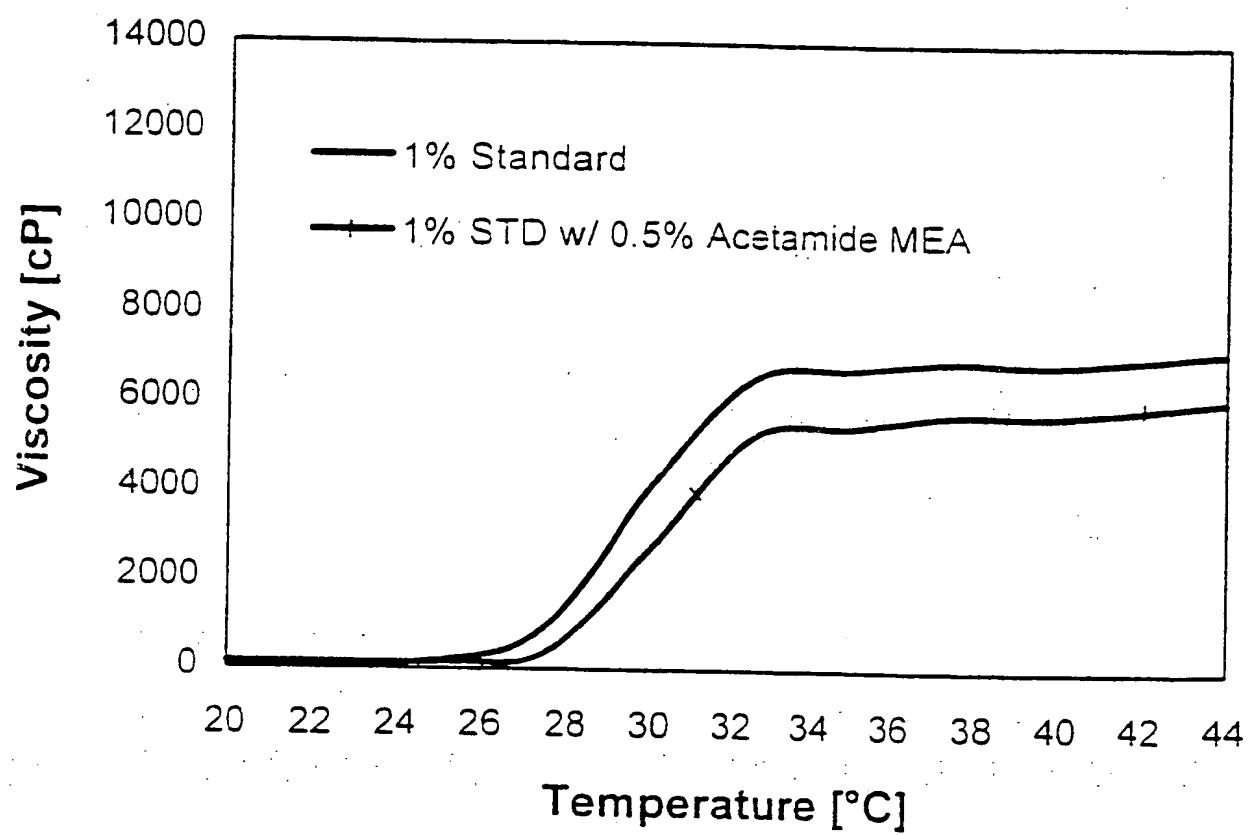


Figure 7

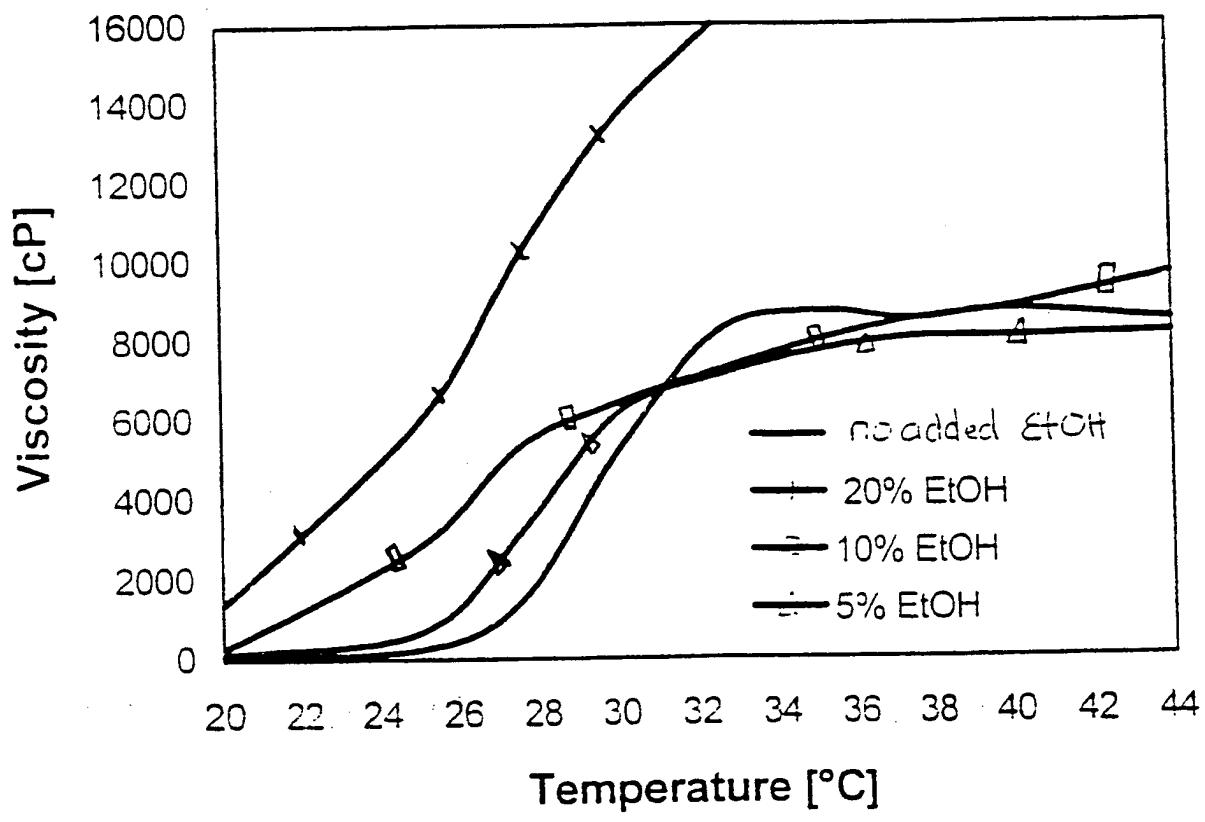


Figure 8

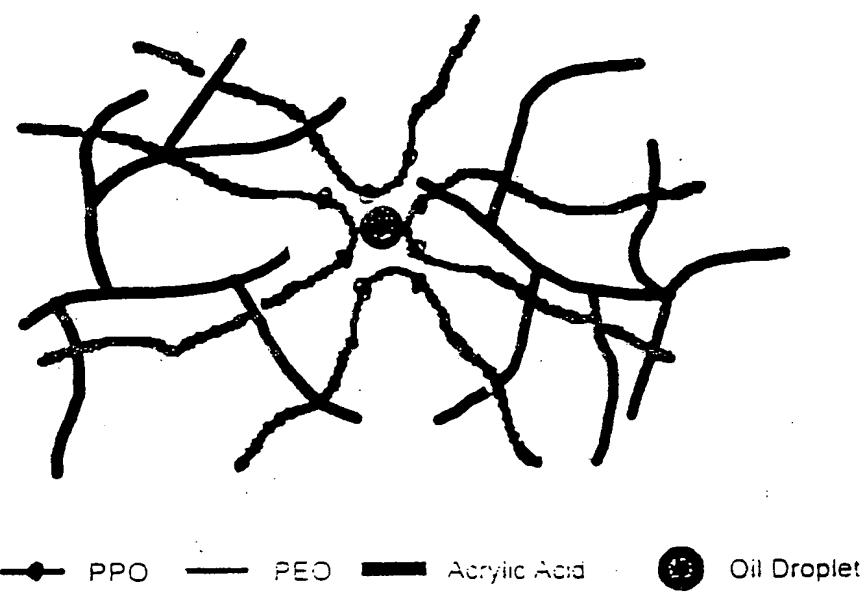
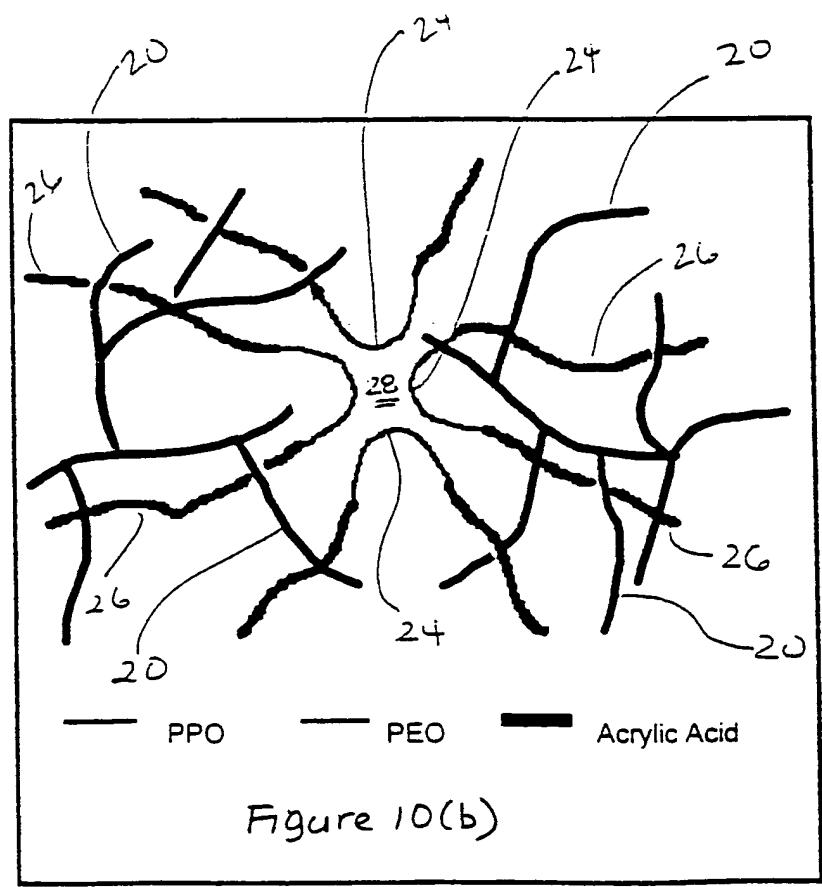
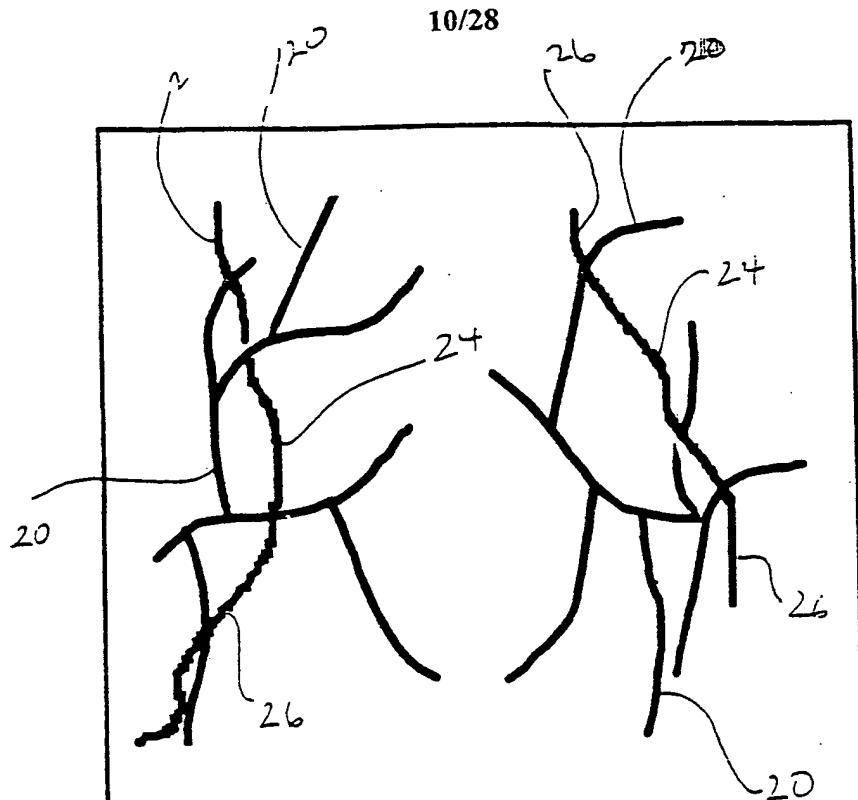


Figure 9



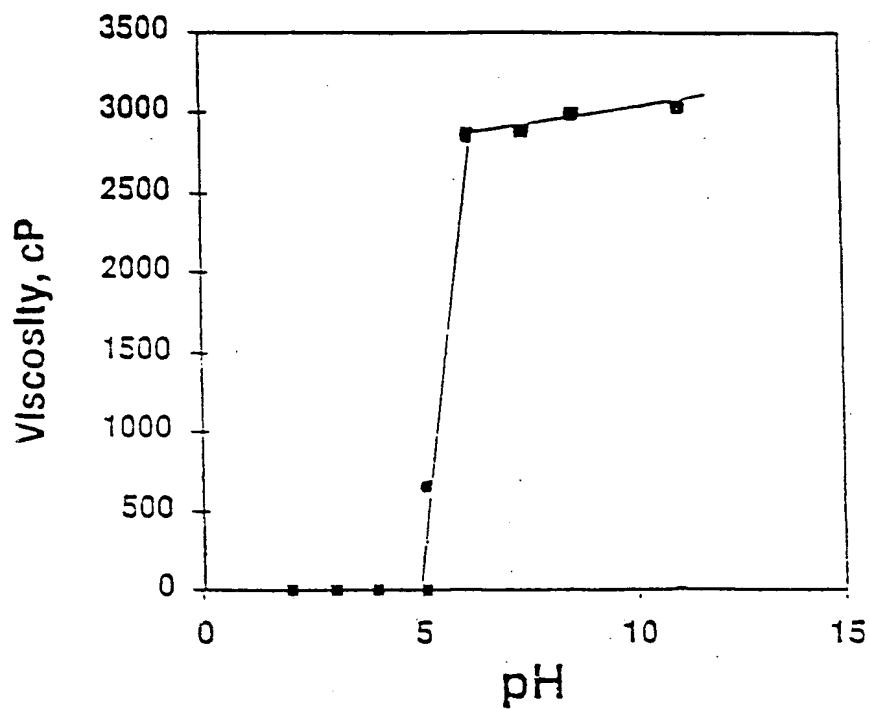


Figure 11

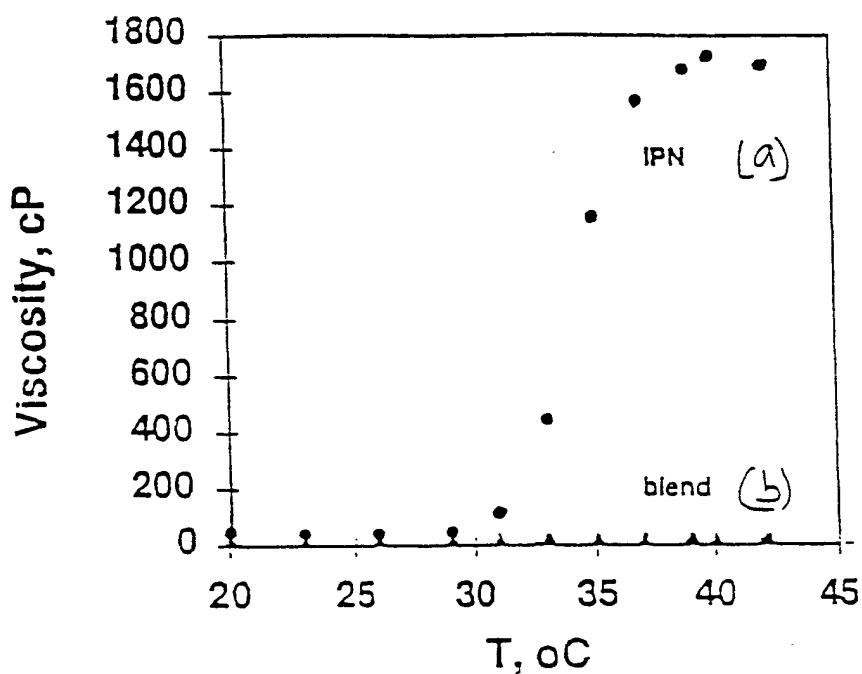


Figure 12

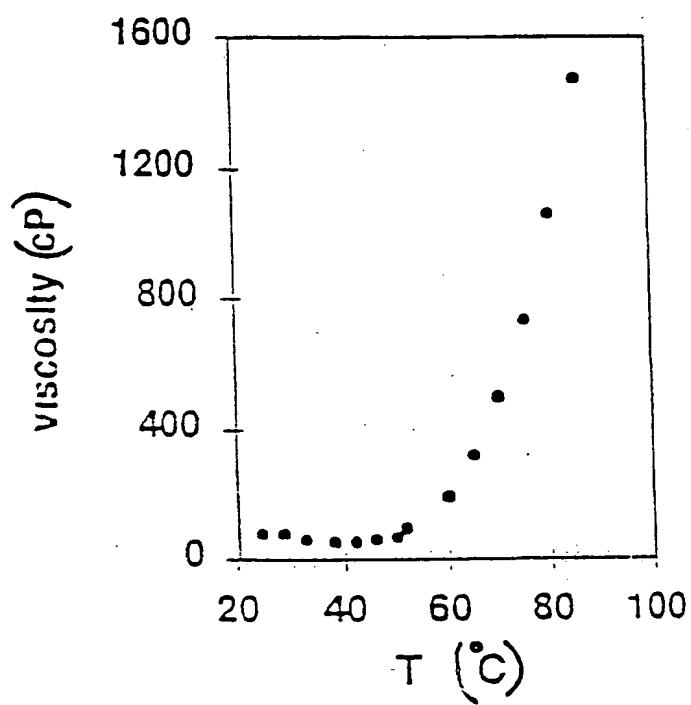


Figure 13

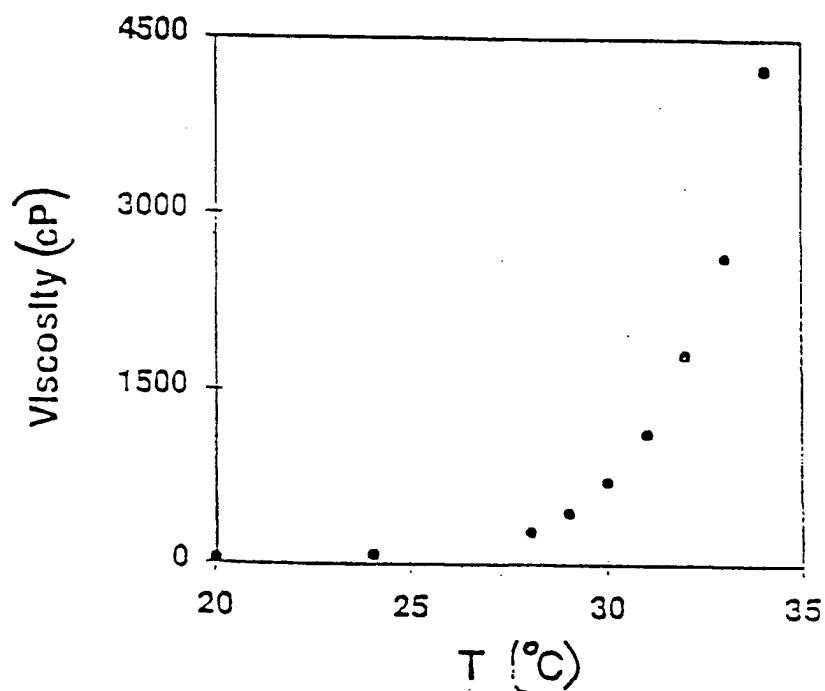


Figure 14

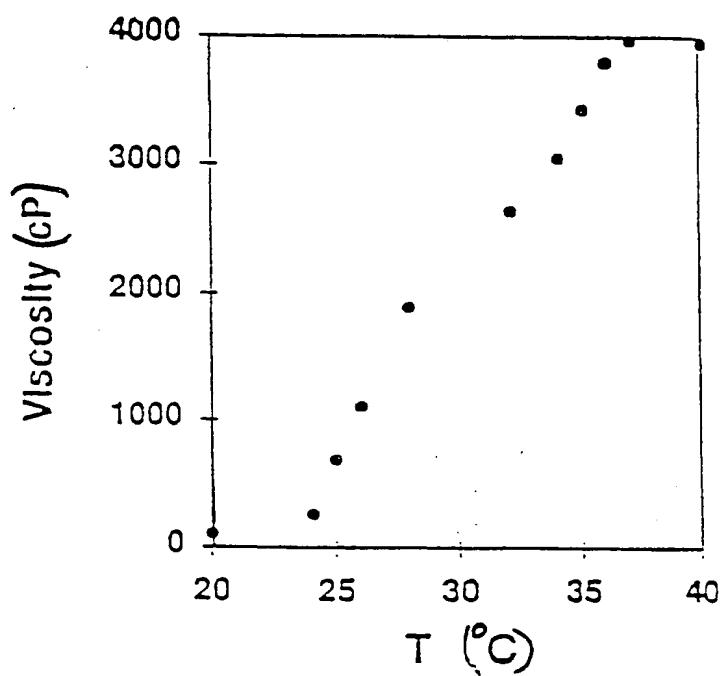


Figure 15

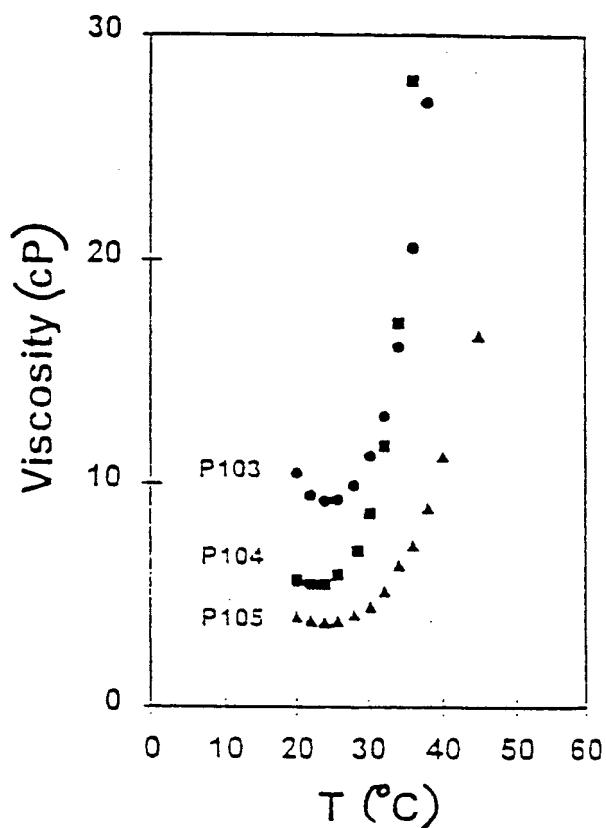


Figure 16

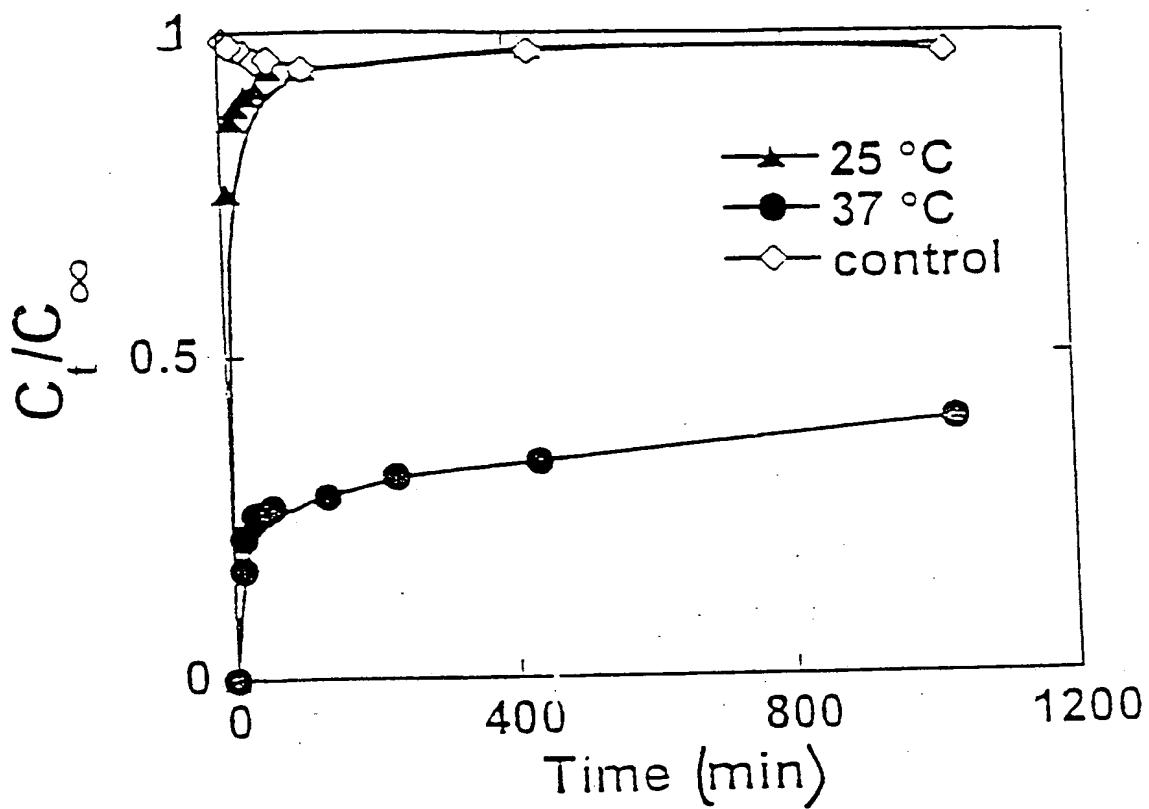


Figure 17

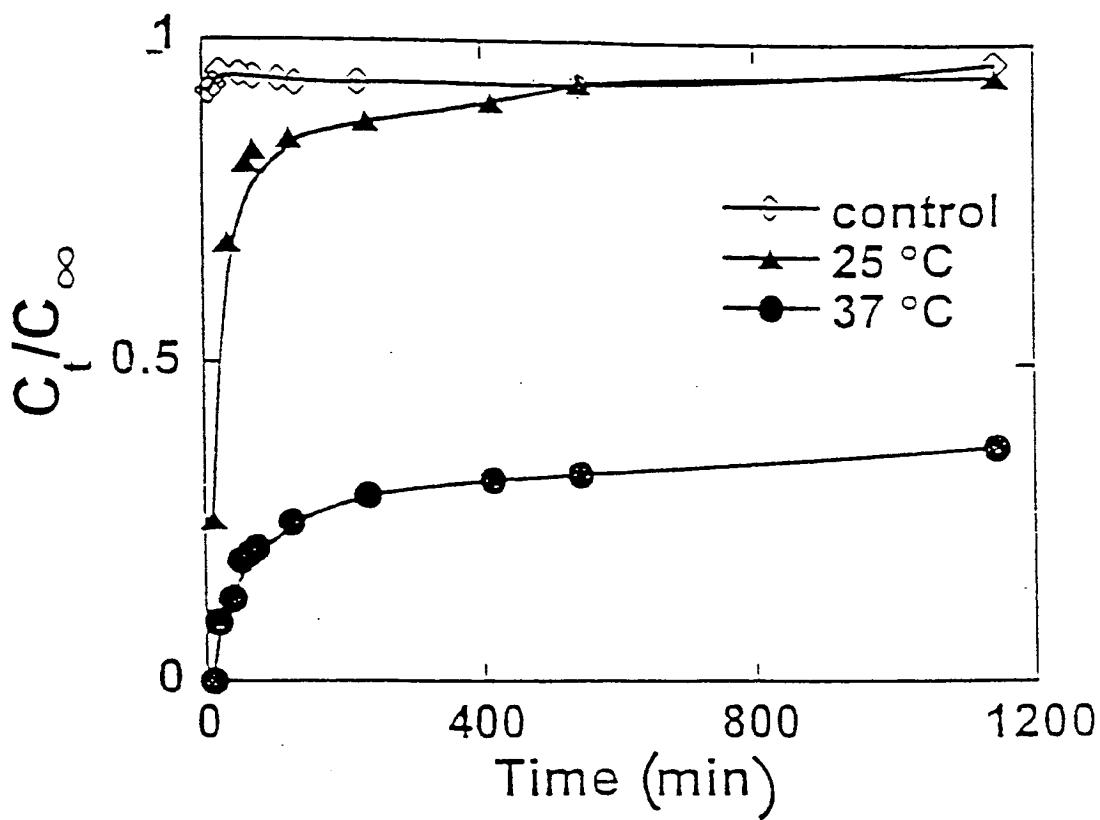


Figure 18

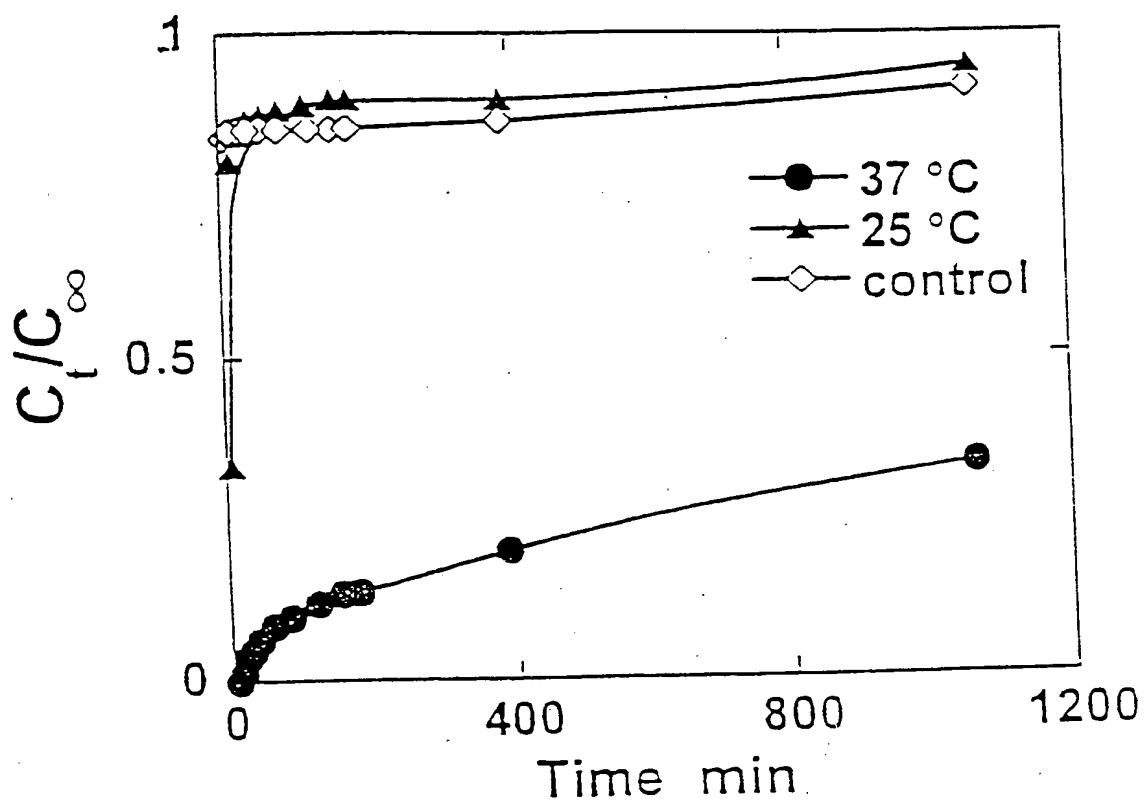


Figure 19

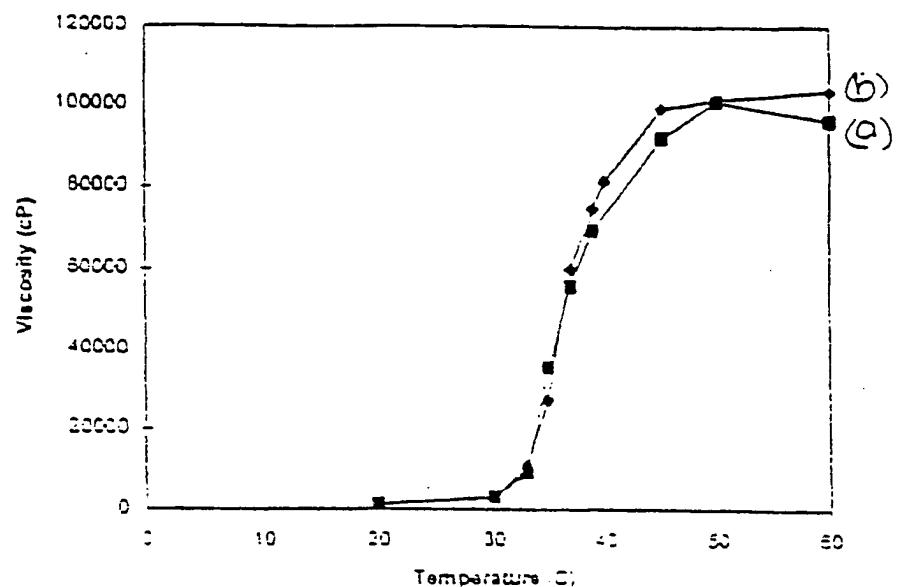


Figure 20

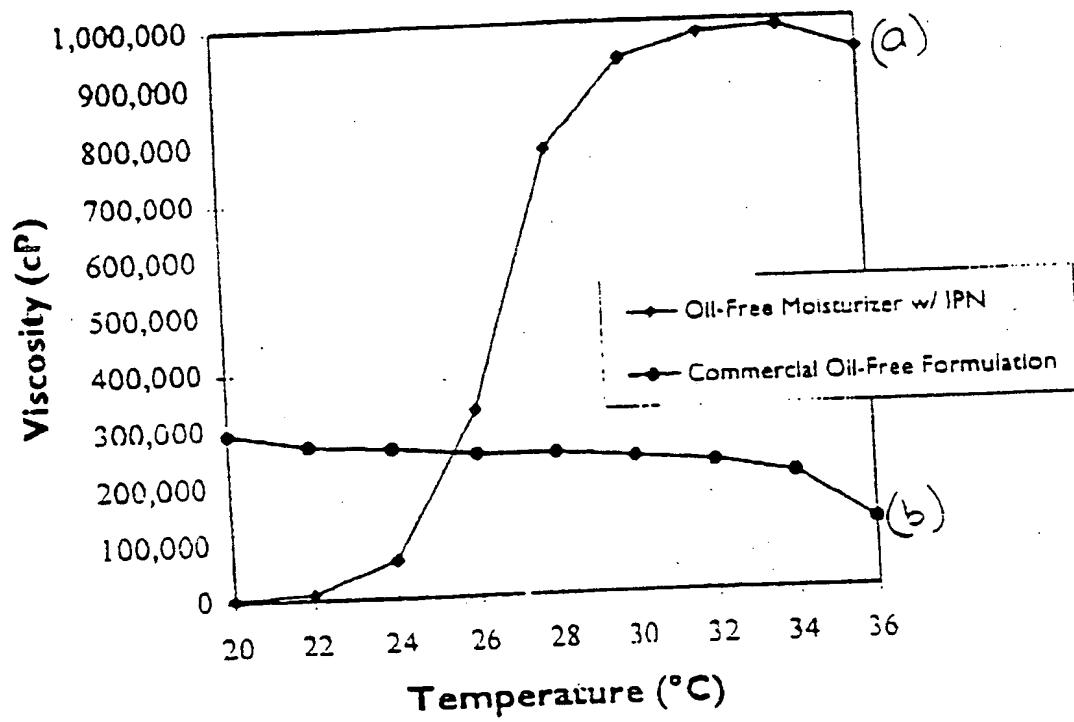


Figure 21

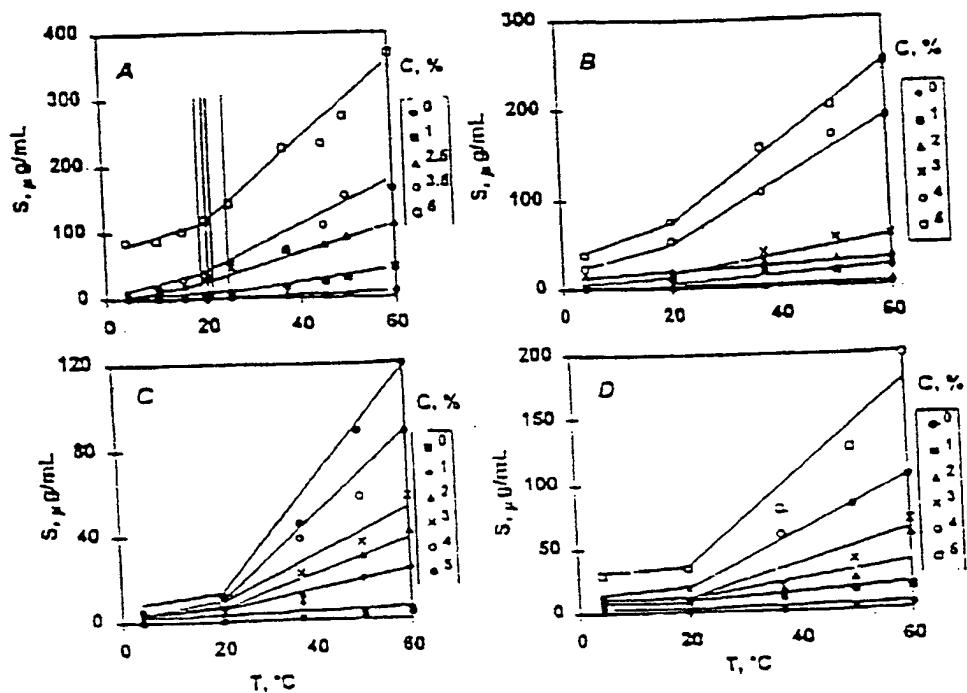


Figure 21

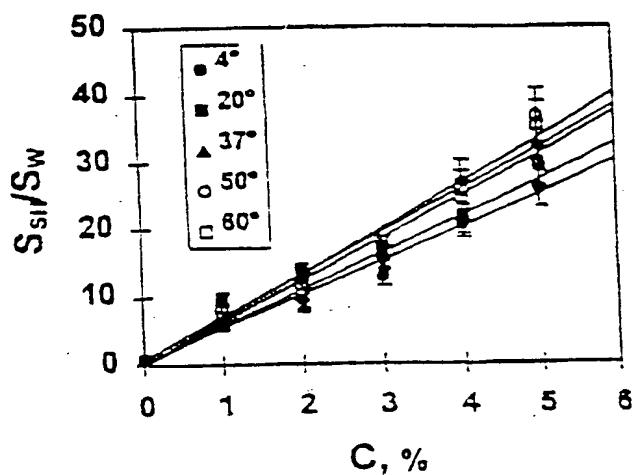


Figure 23

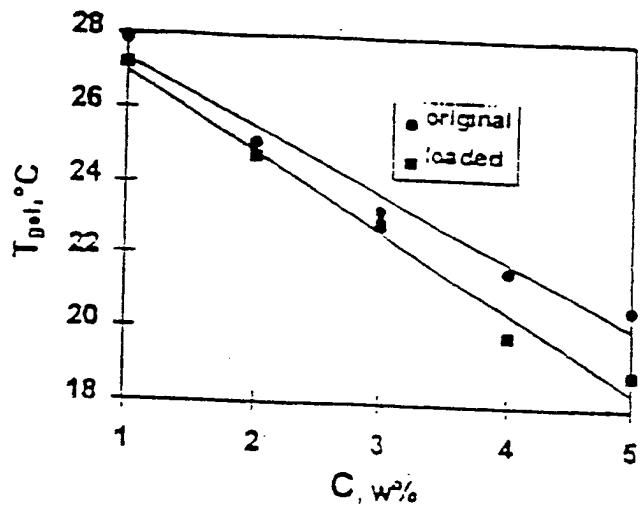
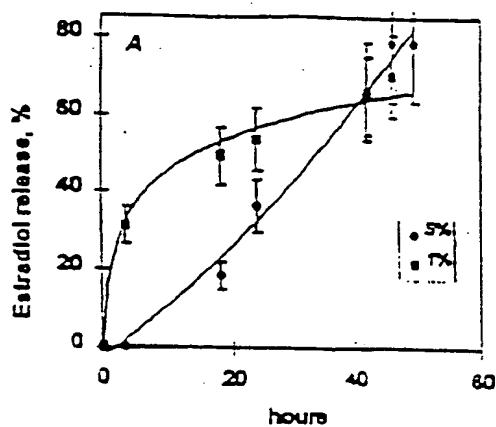
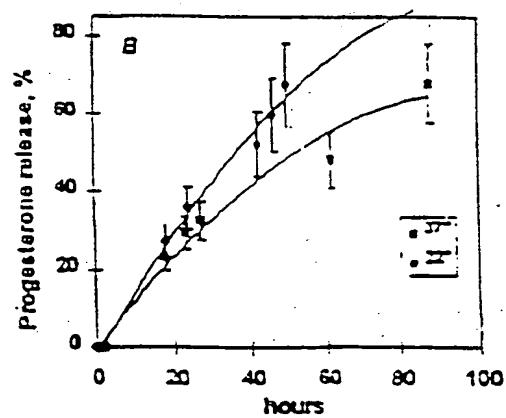


Figure 24



a



b

Figure 25

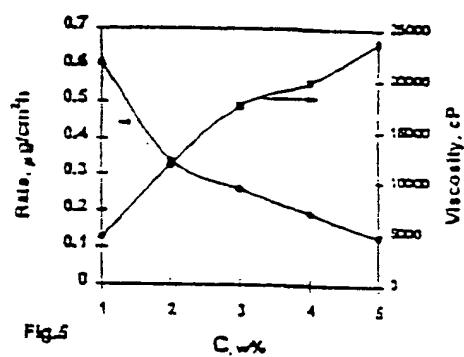


Fig.5

Figure 26

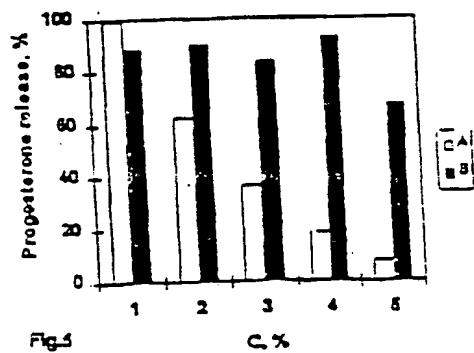


Figure 27

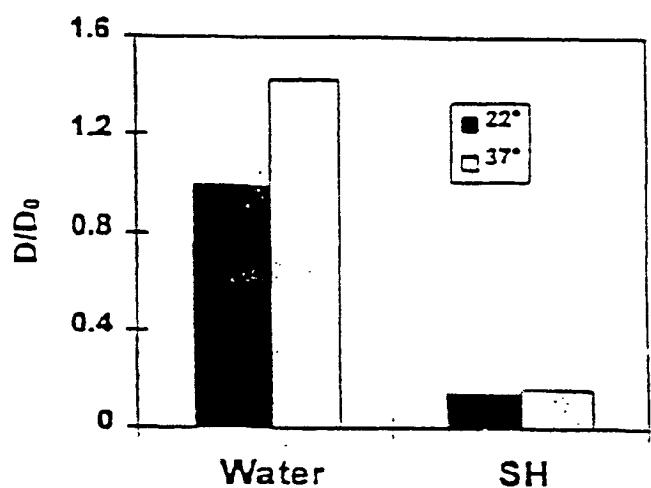


Figure 28

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US98/08931

A. CLASSIFICATION OF SUBJECT MATTER

IPC(6) : A61K 7/00, 7/021, 7/025, 7/06, 7/09, 7/16, 7/32, 7/42, 31/74

US CL : Please See Extra Sheet.

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 424/49, 59, 63, 64, 65, 70.1, 70.2, 70.7, 78.02, 70.08, 400, 401, 405

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

NONE

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

APS: COSMETIC, POLYACRYLIC ACID, POLYMER NETWORK, POLOXAMER

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document with indication, where appropriate, of the relevant passages	Relevant to claim No.
A, P	US 5,662,892 A (BOLICH, JR. et al.) 02 September 1997, see entire document.	1-38
Y	US 5,106,609 A (BOLICH, JR et al.) 21 April 1992, see entire document.	1-38

Further documents are listed in the continuation of Box C.

See patent family annex.

-	Special categories of cited documents:	"T"	later documents published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A"	document defining the general state of the art which is not considered to be of particular relevance	"X"	document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
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"P"	document published prior to the international filing date but later than the priority date claimed		

Date of the actual completion of the international search

03 AUGUST 1998

Date of mailing of the international search report

02 OCT 1998

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/US98/08931

A. CLASSIFICATION OF SUBJECT MATTER:

US CL : 424/49, 59, 63, 64, 65, 70.1, 70.2, 70.7, 78.02, 70.08, 400, 401, 405



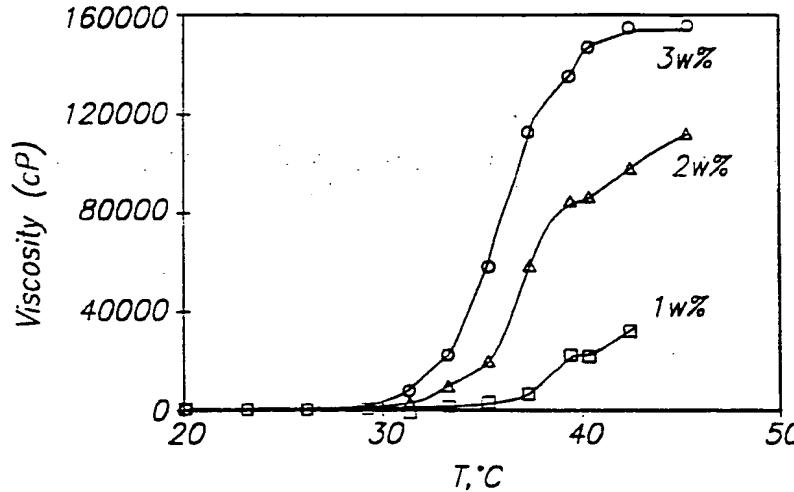
INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification 6 : A61K 7/00, 7/021, 7/025, 7/06, 7/09, 7/16, 7/32, 7/42, 31/74		A1	(11) International Publication Number: WO 98/48768
			(43) International Publication Date: 5 November 1998 (05.11.98)
(21) International Application Number: PCT/US98/08931		63 Webster Street, Whitman, MA 02382 (US). LUCZAK, Scott [US/US]; 3 Remsen Avenue, Medfield, MA 02052 (US). MENDUM, Thomas, H., E. [US/US]; 45 Columbus Avenue #1, Somerville, MA 02143 (US).	
(22) International Filing Date: 1 May 1998 (01.05.98)		(74) Agents: KREBS, Robert, E. et al.; Burns, Doane, Swecker & Mathis, L.L.P., P.O. Box 1404, Alexandria, VA 22313-1404 (US).	
(30) Priority Data: 08/846,883 1 May 1997 (01.05.97) US		(81) Designated States: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, GW, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG).	
(63) Related by Continuation (CON) or Continuation-in-Part (CIP) to Earlier Application US 08/846,883 (CON) Filed on 1 May 1997 (01.05.97)			
(71) Applicant (for all designated States except US): MEDLOGIC GLOBAL CORPORATION [US/US]; 4815 List Drive, Colorado Springs, CO 80919 (US).			
(72) Inventors; and		Published	
(75) Inventors/Applicants (for US only): RON, Eyal, S. [US/US]; 7 Coach Road, Lexington, MA 02173 (US). HAND, Barry, J. [US/US]; 145 Butternut Hollow, Acton, MA 01718 (US). BROMBERG, Lev, S. [US/US]; 17 Sherwood Road, Swampscott, MA 01907 (US). KEARNEY, Marie [US/US]; 342 Faneuil Street #1, Brighton, MA 02135 (US). SCHILLER, Matthew, E. [US/US]; 23C Sagamore Way, Waltham, MA 02154 (US). AHEARN, Peter, M. [US/US];		With international search report. Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.	

(54) Title: COMPOSITIONS FOR COSMETIC APPLICATIONS

(57) Abstract

A cosmetic composition is described having a cosmetically acceptable carrier, comprising a reverse thermal viscosifying polymer network comprising at least one poloxamer component capable of aggregation in response to a change in temperature randomly bonded to at least one poly(acrylic acid) component; and a cosmetically active agent which imparts a preselected cosmetic effect, said carrier and said agent disposed within an aqueous-based medium.



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COMPOSITIONS FOR COSMETIC APPLICATIONS

This application is a continuation-in-part application of copending application U.S.S.N. 60/034,805 filed January 2, 1997, and entitled "Responsive Polymer Networks and Methods of Their Use", which is a continuation-in-part application of copending application PCT/US96/10376 filed June 14, 1996, designating the United States, and entitled "Responsive Polymer Networks and Methods of Their Use", which is a continuation-in-part application of copending application U.S.S.N. 08/580,986 filed January 3, 1996, and entitled "Responsive Polymer Networks and Methods of Their Use", each of which is incorporated entirely by reference.

Field of the Invention

The present invention relates to a cosmetic composition useful in a variety of topical and personal care products, including treatments of disorders and imperfections of the skin or other areas of the body. More particularly, the present invention is directed to a cosmetic composition comprising a poloxamer:poly(acrylic acid) polymer network that can be designed to reversibly gel over a wide range of conditions to provide a composition having a controllable range of viscosities, making it useful in a variety of cosmetic and personal care applications.

20

Background of the Invention

Many examples are known of cosmetic compositions intended for treatment of the skin or elsewhere on the body, where it is desired to have certain properties of viscosity. Hydrogels, such as cellulosics, have been included as thickeners in cosmetic compositions. A hydrogel is a polymer network which absorbs a large quantity of water without the polymer dissolving in water. The hydrophilic areas of the polymer chain absorb water and form a gel region. The extent of gelation depends upon the volume of the solution which the gel region occupies.

Reversibly gelling solutions are known in which the solution viscosity increases and decreases with an increase and decrease in temperature, respectively. Such

reversibly gelling systems are useful wherever it is desirable to handle a material in a fluid state, but performance is preferably in a gelled or more viscous state.

A known material with these properties is a thermal setting gel using block copolymer polyols, available commercially as Pluronic® polyols (BASF, Ludwigshafen, 5 Germany), which is described in U.S. Patent No. 4, 188, 373. Adjusting the concentration of the polymer gives the desired liquid-gel transition. However, concentrations of the polyol polymer of at least 18-20% by weight are needed to produce a composition which exhibits such a transition at commercially or 10 physiologically useful temperatures. Also, solutions containing 18-20% by weight of responsive polymer are typically very viscous even in the "liquid" phase, so that these solutions can not function under conditions where low viscosity, free-flowing is required prior to transition. In addition, these polymer concentrations are so high that the material itself may cause unfavorable interactions during use.

Another known system which is liquid at room temperature, but forms a semi-solid when warmed to about body temperature is formed from tetrafunctional block polymers of polyoxyethylene and polyoxypropylene condensed with ethylenediamine, 15 commercially available at Tetronic® polyols. These compositions are formed from approximately 10% to 5-% by weight of the polyol in an aqueous medium. See, U.S. Patent No. 5,252,318.

20 Joshi, et al. in U.S. Patent No. 5,252,318 reports reversible gelling compositions which are made up of a physical blend of a pH-sensitive gelling polymer (such as a cross-linked poly(acrylic acid) and a temperature-sensitive gelling polymer (such as methyl cellulose or block copolymers of poly(ethylene glycol) and poly(propylene glycol)). In compositions including methylcellulose, 5- to 8-fold 25 increases in viscosity are observed upon a simultaneous change in temperature and pH for very low methylcellulose levels (1-4% by weight). See, Figs. 1 and 2 of Joshi, et al. In compositions including Pluronic® and Tetronic® polyols, commercially available forms of poly(ethylene glycol)/poly(propylene glycol) block copolymers, significant increases in viscosity (5- to 8-fold) upon a simultaneous change in temperature and pH 30 are observed only at much higher polymer levels. See, Figs. 3-6 of Joshi, et al.

Hoffman, et al. in WO95/24430 disclose block and graft copolymers comprising a pH-sensitive polymer component and a temperature-sensitive polymer component. The block and graft copolymers are well-ordered and contain regularly repeating units of the pH-sensitive and temperature-sensitive polymer components. The copolymers 5 are described as having a lower critical solution temperature (LCST), at which both solution-to-gel transition and precipitation phase transition occur. Thus, the transition to a gel is accompanied by the clouding and opacification of the solution. Light transmission is reduced, which may be undesirable in many applications, where the aesthetic characteristics of the composition are of some concern.

10 Thus, the known systems which exhibit reversible gelation are limited in that they require large solids content and/or in that the increase in viscosity is less than 10-fold. In addition, some known systems exhibit an increase in viscosity which is accompanied with the undesirable opacification of the composite.

15

Summary of the Invention

It is an object of the present invention to provide a cosmetic composition which includes a component capable of reversible gelation or viscosification.

It is a further object of the invention to provide a cosmetic composition which includes an ingredient capable of gelation or viscosification at very low solids content.

20

It is another object of the present invention to provide a cosmetic composition which possesses improved flow and gelation characteristics as compared to properties possessed by conventional reversible gelation compositions.

It is a further object of the invention to provide a polymer network composition for use in cosmetic compositions useful as a surfactant or emulsifier in the 25 solubilization of additives and, in particular, hydrophobic additives.

It is a further object of the invention to provide a cosmetic composition which possesses the appropriate thickness, emolliency and cosmetic effect with a minimum of solids content.

It is a further object of the invention to provide a polymer network for use in 30 cosmetic compositions useful as a suspending agent for otherwise insoluble additives.

It is yet a further object of the present invention to provide a composition capable of solubilizing emulsions at elevated temperatures.

It is yet a further object of the invention to provide new and useful cosmetic compositions incorporating the reversibly gelling polymer network composition of the 5 present invention, which take advantage of its unique advantageous properties.

It is yet another object of the present invention to provide reversibly gelling polymer network compositions which are composed of biocompatible polymers.

These and other objects of the invention are achieved with a cosmetic compositions which incorporates a poloxamer:poly(acrylic acid) polymer network as a 10 cosmetically acceptable carrier. The polymer network comprises a poloxamer component randomly bonded to a poly(acrylic acid), or PAA, component in an aqueous-based medium, the polymer network being capable of aggregating in response to an increase in temperature. The reverse thermal viscosifying poloxamer:poly(acrylic acid) polymer network includes random covalent bonding between the poly(acrylic acid) component and the poloxamer component of the network. The polymer network may also include some unbound or "free" poloxamer or other additives which contribute 15 to or modify the characteristic properties of the polymer composition.

In addition, the cosmetic composition includes a cosmetic agent selected to provide a preselected cosmetic effect. By "cosmetic agent", as that term is used herein, 20 it is meant that the additive imparts a cosmetic effect. A cosmetic effect is distinguishable from a pharmaceutical effect in that a cosmetic effect relates to the promoting bodily attractiveness or masking the physical manifestation of a disorder or disease. In contrast, a pharmaceutic seeks to treat the source or symptom of a disease or physical disorder. It is noted however, that the same additives may have either a 25 cosmetic or pharmaceutical effect, depending upon the amounts used and the manner of administration.

By "cosmetic", as that term is used herein, it is meant the cosmetic and personal-care applications intended to promote bodily attractiveness or to cover or mask the physical manifestations of a disorder or disease. Cosmetics include those products 30 subject to regulation under the FDA cosmetic guidelines, as well as sunscreen products,

acne products, skin protectant products, anti-dandruff products, and deodorant and antiperspirant products.

By "gelation" or viscosification, as that term is used herein, it is meant a drastic increase in the viscosity of the polymer network solution. Gelation is dependent on the initial viscosity of the solution, but typically a viscosity increase in the range of 2- to 100-fold, and preferably 5- to 50-fold, and more preferably 10- to 20-fold is observed in the polymer network which is used in the preparation of the cosmetic compositions of the invention. Such effects are observed in a simple polymer network solution and the effect may be modified by the presence of other components in the cosmetic composition.

By "reversibly gelling" as that term is used herein, it is meant that the process of gelation takes place upon an *increase* in temperature rather than a decrease in temperature. This is counter-intuitive, since it is generally known that solution viscosity *decreases* with an increase in temperature.

As used herein, "poloxamer" is a triblock copolymer derived from poly(ethylene glycol)-poly(propylene glycol)-poly(ethylene glycol) blocks. The poloxamer is capable of responding to a change in temperature by altering its degree of association and/or agglomeration. The aggregation may be in the form of micelle formation, precipitation, labile cross-linking or other factors. The poloxamer has the general formula of a triad ABA block copolymer, $(P_1)_a(P_2)_b(P_1)_a$ where P_1 = poly(ethylene glycol) and P_2 = poly(propylene glycol) blocks, where a is in the range of 10-50 and where b is in the range of 50-70.

The poly(acrylic acid) component includes poly(acrylic acid) and its salts. The poly(acrylic acid) supports and interacts with the poloxamer component so that a multi-material, responsive polymer network is formed. The interaction of the poloxamer and poly(acrylic acid) exhibits a synergistic effect, which magnifies the effect of the poloxamer component in viscosifying and/or gelling the solution.

The novel interaction between the constituent polymers components of the polymer network permits formation of gels at very low solids content. Gelation and/or viscosification is observed in aqueous solutions having about 0.01 to 20 wt% of the

poloxamer component and about 0.01 to 20 wt% of the poly(acrylic acid) component. A typical reversibly gelling polymer network may be comprised of less than about 4 wt% of total polymer solids (e.g., poloxamer and poly(acrylic acid)) and even less than 1 wt% total polymer solids while still exhibiting reverse thermal viscosification. Of course, the total solids content including additives of a reversibly gelling polymer network composition may be much higher. The viscosity of the gel increases at least ten-fold with an increase in temperature of about 5°C at pH 7 and 1 wt% polymer. Viscosity increases may be even greater over a larger temperature range at pH 7 and 1% polymer network content.

10 The relative proportion of poloxamer and poly(acrylic acid) may vary dependent upon the desired properties of the polymer composition. In one embodiment, the poloxamer is present in a range of about 1 to 20 wt% and the poly(acrylic acid) is present in a range of about 99 to 80 wt%. In another embodiment, the poloxamer component is present in a range of about 79 to 60 wt%. In another embodiment, the 15 poloxamer component is present in a range of about 41 to 50 wt%. In another embodiment, the poloxamer component is present in a range of about 51 to 60 wt% and the poly(acrylic acid) component is present in a range of about 49 to 40 wt%. In yet another embodiment, the poloxamer component is present in a range of about 61 to 90 wt% and the poly(acrylic acid) component is present in a range of about 39 to 20 wt%.
20 In another embodiment, the poloxamer component is present in a range of about 81 to 99 wt% and the poly(acrylic acid) component is present in a range of about 10 to 1 wt%.

25 The poloxamer:poly(acrylic acid) polymer network described above is included in a cosmetic composition to improve the flow characteristics, thickness and other properties of the composition. The composition includes additional cosmetic agents, such as are needed for the cosmetic purpose of the composition. Additives also may be included to modify the polymer network performance, such as to increase or decrease the temperature of the liquid-to-gel transition and/or to increase or decrease the viscosity of the responsive polymer composition.

In one aspect of the invention, the poloxamer:poly(acrylic acid) polymer network is incorporated into a cosmetic composition to impart thickening properties to the cosmetic composition at the use and/or application temperature. Such thickening properties include enhanced overall viscosity, as well as a desirable viscosity response 5 with temperature. The polymer network may be useful as a thickener in pH ranges where other thickeners are not effective.

In another aspect of the invention, the poloxamer:poly(acrylic acid) polymer network is incorporated into a cosmetic composition to stabilize and solubilize hydrophobic agents in the cosmetic composition. The polymer network may be 10 included to increase emulsion stability. Many emulsions, i.e., suspension of small droplets or particles of a first material in a second material, lose viscosity upon heating. As will be demonstrated herein, the poloxamer:poly(acrylic acid) polymer network retains its emulsifying properties even with temperature increase.

In addition, it may be included in the composition to impart emolliency to the 15 composition. The composition may also act as a film-forming agent after it has been applied to the skin. This film-forming agent may be used as a barrier to prevent water loss from the skin which contributes to the moisturization of the skin.

In another aspect of the invention, the poloxamer:poly(acrylic acid) polymer network may be included as an additive in cosmetic applications to prevent viscosity 20 loss at elevated temperatures.

Brief Description of the Drawing

The invention is described with reference to the Drawing, which is presented for the purpose of illustration and is in no way intended to be limiting, and in which:

25 FIG. 1 is a graph of viscosity vs. temperature for a 1 wt%, 2 wt%, and 3 wt% responsive polymer network aqueous composition of a poloxamer:poly(acrylic acid) (1:1) at pH 7.0 measured at a shear rate of 0.44 sec⁻¹;

FIG. 2 is a graph of viscosity vs. temperature for a 1 wt% poloxamer:poly(acrylic acid) polymer network composition demonstrating reversibility 30 of the viscosity response;

FIG. 3 shows the viscosity response of a 2 wt% poloxamer:poly(acrylic acid) polymer composition at various shear rates;

FIG. 4 shows a viscosity response curve for a 2 wt% poloxamer:poly(acrylic acid) polymer network composition prepared with nominal mixing and stirring and 5 prepared using high shear homogenization (8000 rpm, 30 min);

FIG. 5 is a graph of viscosity vs. temperature for a 1 wt% poloxamer:poly(acrylic acid) polymer network composition at various pHs;

FIG. 6 is a graph of viscosity vs. temperature for a 1 wt% poloxamer:poly(acrylic acid) polymer network composition with and without addition 10 of 0.25 wt% KCl;

FIG. 7 is a graph of viscosity vs. temperature for a 1 wt% poloxamer:poly(acrylic acid) polymer network composition with and without addition of 0.5 wt% acetamide MEA;

FIG. 8 is a graph of viscosity vs. temperature for a 1 wt% 15 poloxamer:poly(acrylic acid) polymer network composition without and with 5 wt%, 10 wt% and 20 wt% added ethanol, respectively;

FIG. 9 is an illustration of a reversibly gelling polymer network used as an emulsifier and stabilizer for a hydrophobic agent;

FIG. 10 is a schematic illustration of the poloxamer:poly(acrylic acid) polymer 20 network below and above the transition temperature illustrating the aggregation of the hydrophobic poloxamer regions;

FIG. 11 is a graph of viscosity vs. pH for a 1 wt% responsive polymer network aqueous composition of a poloxamer/poly(acrylic acid) (1:1) measured at a shear rate of 0.44 sec⁻¹;

25 FIG. 12 is a plot of viscosity vs. temperature for (a) a 1 wt% responsive polymer network aqueous composition of Pluronic® F127 poloxamer:poly(acrylic acid) (1:1) and (b) a 1 wt% physical blend of Pluronic® F127 poloxamer:poly(acrylic acid) (1:1) at pH 7.0 measured at a shear rate 0.22 sec⁻¹;

FIG. 13 is a plot of viscosity vs. temperature for a 1 wt% responsive polymer network aqueous composition of Pluronic® F88 poloxamer:poly(acrylic acid) (1:1) in deionized water at pH 7.0 measured at shear rate of 22 sec⁻¹:

5 FIG. 15 is a plot of viscosity vs. temperature for a responsive polymer network composition of 2 wt% Pluronic® F123 poloxamer:poly(acrylic acid) (1:1) at pH 7.0 measured at a shear rate of 22 sec⁻¹;

FIG. 16 is a plot of viscosity vs. temperature for 1 wt% made of series of poloxamers and poly(acrylic acid) (1:1) in deionized water at a shear rate of 132 sec⁻¹;

10 FIG. 17 is a plot showing release of hemoglobin from a poloxamer:poly(acrylic acid) polymer network of the invention;

FIG. 18 is a plot showing the release of lysozyme from the poloxamer:poly(acrylic acid) polymer complex of the invention;

FIG. 19 is a plot showing release of insulin from a poloxamer:poly(acrylic acid) polymer network composition of the invention;

15 FIG. 20 is a plot of viscosity vs. temperature for a poloxamer:poly(acrylic acid) polymer network composition (a) before and (b) after sterilization by autoclave;

FIG. 21 is a plot of viscosity vs. temperature for an oil-free moisturizing formulation prepared from (a) a responsive polymer network composition of the invention and (b) a convention oil-in-water formulation;

20 FIG. 22 is a plot of equilibrium solubility of estradiol (A, B) and progesterone (C, D) in aqueous solutions (pH 7) of Pluronic® F127 (A, C) and responsive polymer network (B, D) vs. temperature;

FIG. 23 is a plot of the ratio of equilibrium solubilities of estradiol in responsive polymer network and water vs. polymer concentration in the responsive polymer network solutions;

25 FIG. 24 is a plot of the effect of loading fluorescein on the onset of gelation of responsive polymer network vs. total polymer concentration in responsive polymer network solution (pH 7.0);

30 FIG. 25 is a plot of the percentage of (a) estradiol and (b) progesterone release from responsive polymer network vs. time;

FIG. 26 is a plot of the rate of progesterone release and macroscopic viscosity vs. polymer concentration;

FIG. 27 is a plot of the percentage of progesterone release vs. polymer concentration in responsive polymer network; and

5 FIG. 28 is a plot of the relative diffusivity of poly(styrene) latex particles in water and responsive polymer network.

Detailed Description of the Invention

The present invention is directed to a cosmetic composition comprising a 10 cosmetically acceptable carrier comprising a novel poloxamer:poly(acrylic acid) polymer network. The polymer network functions as a temperature sensitive thickening agent, and in addition possesses surfactant and emulsifying capabilities which may be beneficial to the cosmetic composition. The polymer network composition according to the invention includes a poloxamer component randomly bonded to a poly(acrylic acid) 15 component. The two polymer component may interact with one another on a molecular level. The polymer network contains about 0.01 - 20 wt% each of poloxamer and poly(acrylic acid). Exemplary polymer network compositions range from about 1:10 to about 10:1 poloxamer:poly(acrylic acid). Polymer network gel compositions which exhibit a reversible gelation at body temperature (25-40°C) and/or at physiological pH 20 (ca. pH 3.0-9.0) and even in basic environment up to pH 13 (hair care) are particularly preferred for cosmetic applications.

In one embodiment of the invention, a 1:1 poloxamer:poly(acrylic acid) polymer network at appropriate pH exhibits flow properties of a liquid at about room temperature, yet rapidly thickens into a gel consistency of at least about five times 25 greater, preferably at least about 10 times greater, and even more preferably at least about 30 times and up to 100 times greater, viscosity upon increase in temperature of about 10°C and preferably about 5°C. The reversibly gelling polymer network of the present invention exhibit gelation even at very low polymer concentrations. For example, polymer network compositions at pH 7 comprising about 0.5 wt% poloxamer 30 component and about 0.5 wt% PAA exhibits a significant increase in viscosity from a

free-flowing liquid (50 cps) to a gel (6000 cps). The observed gelation takes place at low solids contents, such as less than 20 wt% or preferably less than about 10 wt%, or more preferably less than about 2.5 wt% or most preferably less than about 0.1 wt%. Thus, only a small amount by weight of the polymer network need be incorporated into 5 a cosmetic composition in order to provide the desired thickening or viscosifying effect.

The reverse viscosification effect at low polymer concentrations provides clear, colorless gels which are particularly well-suited to cosmetic applications. For example, very little residue is formed upon dehydration which may be important in some applications, such as in topically applied cosmetics. An additional advantage of the 10 polymer network of the invention is that it remains clear and translucent above and below the critical temperature or pH. These characteristics of the reversibly gelling polymer network make it well suited for use in cosmetic compositions.

The polymer network of the present invention technology may be added to cosmetic formulations to increase the thickness and viscosity of the composition. The 15 poloxamer:poly(acrylic acid) polymer network possesses hydrophobic regions capable of aggregation. Unlike conventional thickeners, the aggregation of the polymer network of the present invention is temperature sensitive. Thus the inventive polymer network of the present invention may have a transition temperature (i.e., temperature of aggregation) above room temperature so that the cosmetic composition is of low 20 viscosity at or below room temperature and is of high viscosity at or around body temperature (body temperature includes both surface and internal body temperature). Thus, a composition may be prepared at low temperatures while the polymer network is in a low viscosity state. Mixing of ingredients under low viscosity is expected to be easier, thus simplifying the manufacturing process. Yet, the resultant mixture would be 25 of increased viscosity at use temperatures. As a further advantage, a cosmetic composition comprising poloxamer:poly(acrylic acid) polymer network may be spread thinly to allow for even application, due to its low viscosity at room temperature, but will thicken and "fill" the skin contours upon warming up to body surface temperature.

In another aspect of the invention, the composition may be applied through a 30 nozzle that provides high shear to reduce viscosity, yet the composition regains its

viscosity after application to the skin. This contrasts with conventional formulations which permanently lose viscosity after being subjected to high shear.

In another aspect of the invention, the composition may be formulated and applied as a liquid, spray, semi-solid gel, cream, ointment, lotion, stick, roll-on 5 formulation, mousse, pad-applied formulation, and film-forming formulation.

The poloxamer:poly(acrylic acid) polymer network may also be included in a cosmetic composition for use as a stabilizing, solubilizing or emulsifying agent for a hydrophobic component of the cosmetic formulation. The strong hydrophilic regions of the poloxamer resulting from aggregation and micelle formation create hydrophobic 10 domains which may be used to solubilize and control release of hydrophobic agents. Similar micelle-based systems have been shown to protect trapped peptides against enzymatic degradation from surface enzymes.

The reversibly gelling polymer network of the present invention is a unique polymer composition designed to abruptly change its physical characteristics or the 15 characteristics and properties of materials mixed therewith with a change in temperature. Without intending to be bound by any particular mechanism or chemical structure, it is believed that the structure of the polymer network involves a random bonding of the poloxamer onto the backbone of the poly(acrylic acid). A portion of the poloxamer which is present during the polymerization reaction which forms the 20 poly(acrylic acid) is bonded to the backbone of the forming poly(acrylic acid) through hydrogen abstraction and subsequent reaction. See detailed discussion of the mechanism, below. The combination of the poly(acrylic acid) and randomly bonded poloxamer gives the composition its unique properties. Any free poloxamer remaining after polymerization of PAA remains associated with the random co-polymer, resulting 25 in a miscible composition. Free poloxamer may also be present in the polymer network composition; however, its presence is not required in order to observe reverse thermal viscosification.

The poly(acrylic acid) may be linear, branched and/or cross-linked. Poly(acrylic acid) is capable of ionization with a change in pH of the solution. By 30 ionization, as that term is used with respect to poly(acrylic acid), it is meant the

formation of the conjugate base of the acrylic acid, namely acrylate. As used herein, poly(acrylic acid) includes both ionized and non-ionized versions of the polymer. Changes in ionic strength may be accomplished by a change in pH or by a change in salt concentration. The viscosifying effect of the polymer network is partly a function 5 of the ionization of the poly(acrylic acid); however, reverse thermal gelling may occur without ionization. Changes to the ionic state of the polymer causes the polymer to experience attractive (collapsing) or repulsive (expanding) forces. Where there is no need or desire for the composition to be applied in a high viscosity state, it may be possible to prepare the composition as non-ionized poly(acrylic acid). The body's 10 natural buffering ability will adjust the pH of the applied composition to ionize the poly(acrylic acid) and thereby develop its characteristic viscosity.

The poloxamer possesses regions of hydrophobic character, e.g., poly(propylene glycol) blocks, and hydrophilic character, e.g., poly(ethylene glycol) blocks. The poloxamer may be linear or branched. Suitable poloxamers include triad 15 block copolymers of poly(ethylene glycol) and poly(propylene glycol) having the general formula $(P_1)_a(P_2)_b(P_1)_a$, where P_1 = poly(ethylene glycol), and P_2 = poly(propylene glycol) blocks, where a is in the range of 10-50 and where b is in the range of 50-70, where poly(propylene glycol) represents the hydrophobic portion of the polymer and poly(ethylene glycol) represents the hydrophilic portion of the polymer. 20 Pluronic® polymers (BASF) are commercially available for (a) in the range of 16 to 48 and (b) ranging from 54-62. One or more poloxamers may be used in the reversibly gelling polymer network composition of the present invention.

The reversibly gelling responsive polymer networks compositions of the present invention are highly stable and do not exhibit any phase separation upon standing or 25 upon repeated cycling between a liquid and a gel state. Samples have stood at room temperature for more than three months without any noticeable decomposition, clouding, phase separation or degradation of gelation properties. This is in direct contrast to polymer blends and aqueous mixed polymer solutions, where phase stability and phase separation is a problem, particularly where the constituent polymers are 30 immiscible in one another.

And example of the dramatic increase in viscosity and of the gelation of the reversibly gelling polymer network compositions of the invention is shown in Figure 1. Figure 1 is a graph of viscosity vs. temperatures for 1 wt%, 2 wt%, and 3 wt% polymer network compositions comprising 1:1 poloxamer:poly(acrylic acid) hydrated and neutralized. The viscosity measurements were taken on a Brookfield viscometer at a shear rate of 0.44 sec⁻¹ at pH 7.0. All solutions had an initial viscosity of about 1080 cP and exhibited a dramatic increase in viscosity to gel point at about 35°C. This is not typical of all polymer network compositions since polymerization condition will affect initial viscosity. Final viscosities were approximately 33,000 cP, 100,000 cP and 10 155,000 cP for the 1 wt%, 2 wt% and 3 wt% compositions, respectively. This represents viscosity increases of about 30-, 90- and 140-fold, respectively. This effect is entirely reversible. Upon cooling, the composition regains its initial viscosity. This is demonstrated in Figure 2, where a 1 wt% poloxamer:poly(acrylic acid) composition is warmed through the transition temperature up to 35°C (simple curve), cooled to 15 room temperature (24°C, ticked curve) and then warmed again up to above the transition temperature (open box curve). The viscosity response was virtually identical in all three instances.

As would be expected with a non-Newtonian system, the solution viscosity differs with different shear rates. Figure 3 shows the viscosity response of a 2 wt% poloxamer:poly(acrylic acid) polymer composition at various shear rates. The viscosity response is consistent between 24°C and 34°C; however, the final viscosity is reduced with increasing shear rate.

However, unlike many prior art hydrogels, e.g., carbomers, the poloxamer:poly(acrylic acid) polymer network composition does not permanently loose viscosity after being subjected to high shear conditions. The poloxamer:poly(acrylic acid) polymer network composition remains unaffected by such shear conditions as homogenization. Figure 4 compares the viscosity response curve of a 2 wt% poloxamer:poly(acrylic acid) polymer composition prepared with nominal mixing (simple line) and stirring with that of a polymer composition of similar composition

prepared using high shear homogenization designated by a ticked line (8000 rpm, 30 min). No significant decrease in viscosity is observed.

A number of factors influence the viscosity and transition temperature of the composition. The more important factors include polymer concentration, pH, and 5 presence and nature of additives.

The effect of pH on the viscosity of reversibly gelling polymer networks is shown in Figure 5. Increasing pH from the starting pH has a lesser effect on the viscosity than decreasing the pH. This may relate to the extent of ionization of the poly(acrylic acid) component of the polymer network as discussed above. This may be 10 clearly seen in Figure 5 when comparing the viscosity response of a 1 wt% poloxamer:poly(acrylic acid) polymer composition at pH 5 and pH 11. Satisfactory viscosities can be obtained at high pHs indicating the potential value of the reversibly gelling polymer network in products such as depilatories, hair straighteners and hair relaxers.

15 The responsive polymer network may also include additives for influencing the performance of the polymer composition, such as the transition temperature and the viscosity of the polymer composition above the transition temperature. The following list is not intended to be exhaustive but rather illustrative of the broad variety of additives which can be used.

20 These materials include solvents (e.g., 2-propanol, ethanol, acetone, 1,2-pyrrolidinone, N-methylpyrrolidinone), salts (e.g., calcium chloride, sodium chloride, potassium chloride, sodium or potassium phosphates, borate buffers, sodium citrate), preservatives (benzalkonium chloride, phenoxyethanol, sodium hydroxymethylglycinate, ethylparaben, benzoyl alcohol, methylparaben, 25 propylparaben, butylparaben, Germaben II), humectant/moisturizers (acetamide MEA, lactamide MEA, hydrolyzed collagen, mannitol, panthenol, glycerin), lubricants (hyaluronic acid, mineral oil, PEG-60-lanolin, PPG-12-PEG-50-lanolin, PPG-2 myristyl ether propionate) and surfactants.

Surfactants may be divided into three classes: cationic, anionic, and non-ionics.

30 An example of a cationic surfactant used is ricinoleamidopropyl ethyldimonium

ethosulfate (Lipoquat R). Anionic surfactants include sodium dodecyl sulfate and ether sulfates such as Rhodapex CO-436. Nonionic surfactants include Surfynol CT-111, TG, polyoxyethylene sorbitan fatty acid esters such as Tween 65 and 80, sorbitan fatty acid esters such as Span 65, alkylphenol ethoxylates such as Igepal CO-210 and 430, 5 dimethicone copolyols such as Dow Corning 190, 193, and Silwet L7001.

The addition of polymers has been studied including xanthan gum, cellulosics such as hydroxyethylcellulose (HEC), carbomethoxycellulose (CMC), lauryldimonium hydroxypropyl oxyethyl cellulose (Crodacel QL), hydroxypropylcellulose (HPC), and hydroxypropylmethylcellulose (HPMC), poly(acrylic acid), cyclodextrins, methyl 10 acrylamido propyl trimmonium chloride (MAPTAC), polyethylene oxide, polyvinylpyrrolidone, polyvinyl alcohol, and propylene oxide/ethylene oxide random copolymers. Poloxamers may also be used as additives. Examples include both the Pluronic® polyols having an $(P_1)_a(P_2)_b(P_1)_a$ structure such as Pluronic® F38, L44, P65, F68, F88, L92, P103, P104, P105, F108, L122, and F127, as well as the reverse 15 Pluronic® R series $(P_2)_a(P_1)_b(P_2)_a$ structure such as Pluronic® 17R2 and 25R8. Other miscellaneous materials include propylene glycol, urea, triethanolamine, alkylphenol ethoxylates (Iconol series), and linear alcohol alkoxylates (Plurafac series).

Additives affect the viscosity of the compositions differently depending upon the nature of the additive and its concentration. Some additives will affect the initial or 20 final viscosity, whereas others will affect the temperature range of the viscosity response, or both.

Potassium chloride and acetamide MEA are two examples of additives which decrease the final viscosity of the composition (see Example 30). KCl (0.25%) added to a 1 wt% reversibly gelling polymer composition reduces the viscosity by about 3000 25 cps. See Figure 6. The humectant, acetamide MEA, lowers the viscosity of a 1 wt% solution by approximately 1,500 cps (see Figure 7).

Glycerin, ethanol and dimethicone copolymer have been shown to affect the temperature range over which the viscosity response occurs. Glycerin shifts the transition temperature to a slightly lower range from an initial 24-34°C to about 24-30 30°C, but does not affect the final viscosity (see Example 44). The effect of ethanol on

the viscosity is different at different concentration levels. At 5 wt% and 10 wt% added ethanol, the transition temperature is shifted to lower ranges, e.g., 24-29°C and 20-29°C, respectively. At 20 wt% added ethanol, the composition not only exhibits a lowering of the transition temperature, but also a marked increase in initial and final viscosity. See Figure 8. Dimethicone copolymer (1 wt%) also changed the transition temperature, but in this instance the transition temperature range was raised to 28-41°C. Thus, proper selection of additives permits the formulator to adjust the transition temperature to various ranges.

Those skilled in the art will appreciate that the polymer network compositions of the present invention may be utilized for a wide variety of cosmetic and personal care applications. To prepare a cosmetic composition, an effective amount of cosmetically active agent(s) which imparts the desirable cosmetic effect is incorporated into the reversibly gelling polymer network composition of the present invention. Preferably the selected agent is water soluble, which will readily lend itself to a homogeneous dispersion throughout the reversibly gelling polymer network composition; however, the polymer network has been demonstrated to significantly solubilize or suspend hydrophilic agents in order to improve formulation homogeneity (see Example 36). It is also preferred that the agent(s) is nonreactive with the polymer network composition. For materials which are not water soluble, it is also within the scope of the invention to disperse or suspend powders or oil (lipophilic materials) throughout the polymer network composition. It will also be appreciated that some applications may require a sterile environment. It is contemplated as within the scope of the invention that the reversibly gelling polymer network compositions of the present invention may be prepared under sterile conditions. An additional feature of the reversibly gelling polymer composition is that it is prepared from constituent polymers that have known accepted toxicological profiles.

The poloxamer:poly(acrylic acid) polymer network has been evaluated under Good Laboratory Practice (GLP) standard protocols known in the art for toxicity in animal models and found to exhibit no toxic effects. The results of the toxicity study

are summarized in the following Table 1. The non-toxicity of the polymer network makes it an ideal candidate for use in cosmetic compositions.

Table 1. Toxicity data for 6% poloxamer:poly(acrylic acid) solution at pH 7.

Reaction Tests	Mode of Testing	Results
Skin sensitization	guinea pig - topical	not a sensitizer
Eye irritation	rabbit - eye instillation	negative
Primary dermal irritation	rabbit - topical	very slight edema (1 on a scale of 1-8)
Acute dermal toxicity	rat - single dose (2g/kg)	no toxicity
Acute oral toxicity	rat - single dose (5g/kg)	no toxicity
AMES test		negative

Exemplary cosmetic and personal care applications, for which the reversibly gelling polymer network composition may be used include, but are not limited to, baby products, such as baby shampoos, lotions, powders and creams; bath preparations, such as bath oils, tablets and salts, bubble baths, bath fragrances and bath capsules; eye makeup preparations, such as eyebrow pencil, eyeliner, eye shadow, eye lotion, eye makeup remover and mascara; fragrance preparations, such as colognes and toilet waters, powders and sachets; noncoloring hair preparations, such as hair conditioner, hair spray, hair straighteners, permanent waves, rinses, shampoos, tonics, dressings and other grooming aids; color cosmetics; hair coloring preparations such as hair dye, hair tints, hair shampoos, hair color sprays, hair lighteners and hair bleaches; makeup preparations such as face powders, foundations, leg and body paints, lipstick, makeup bases, rouges and makeup fixatives; manicuring preparations such as basecoats and undercoats, cuticle softeners, nail creams and lotions, nail extenders, nail polish and enamel, and nail polish and enamel remover; oral hygiene products such as dentrifices and mouthwashes; personal cleanliness, such as bath soaps and detergents, deodorants, douches and feminine hygiene products; shaving preparations such as aftershave lotion, beard softeners, men's talcum, shaving cream, shaving soap and preshave lotions; skin care preparations such as cleansing preparations, skin antiseptics, depilatories, face and

neck cleansers, body and hand cleansers, foot powders and sprays, moisturizers, night preparations, paste masks, and skin fresheners; and suntan preparations such as suntan creams, gels and lotions, indoor tanning preparations.

Preparation of the above-named cosmetic compositions and others may be
5 accomplished with reference to any of the cosmetic formulation guidebooks and industry journals which are available in the cosmetic industry. These references supply standard formulations which may be modified by the addition or substitution of the reversible viscosifying polymer network of the present invention into the formulation. Suitable guidebooks include Cosmetics and Toiletries Magazine, Vo. 111 (March, 10 1996); Formulary: Ideas for Personal Care, Croda, Inc., Parsippany, NJ (1993); and Cosmeticon: Cosmetic Formulary, BASF, which are hereby incorporated in their entirety by reference.

The cosmetic composition may be in any form. Suitable forms include but are not limited to lotions, creams, sticks, roll-on formulations, mousses, aerosol sprays, 15 pad-applied formulations, and film-forming formulations.

As those skilled in the art will appreciate, the foregoing list is exemplary only. Because the reversibly gelling polymer network composition of the present invention is suited for application under a variety of physiological conditions, a wide variety of cosmetically active agents may be incorporated into and administered from the polymer 20 network composition. In addition to the poloxamer:poly(acrylic acid) polymer network, additional cosmetically acceptable carriers may be included in the composition, such as by way of example only, emollients, surfactant, humectants, powders and other solvents. By way of example only, the cosmetic composition also may include additional components, which serve to provide additional aspects of the 25 cosmetic affect or to improve the stability and/or administration of the cosmetic. Such additional components include, but are not limited to, preservatives, abrasives, acidulents, antiacne agents, anti-aging agents, antibacterials, anticaking, anticaries agents, anticellulites, antidandruff, antifungal, anti-inflammatory, anti-irritants, antimicrobials, antioxidants, antiperspirants, antiseptics, antistatic agents, astringents, 30 binders, buffers, additional carriers, chelators, cell stimulants, cleansing agents,

conditioners, deodorants, depilatories, detergents, dispersants, emollients, emulsifiers, enzymes, essential oils, exfoliants, fibers, film forming agents, fixatives, foaming agents, foam stabilizers, foam boosters, fungicides, gellants, glossers, hair conditioner, hair set resins, hair sheen agents, hair waving agents, humectants, lubricants, moisture 5 barrier agents, moisturizers, ointment bases, opacifier, plasticizer, polish, polymers, powders, propellant, protein, refatting agents, sequestratnt, silicones, skin calming agents, skin cleansers, skin conditioners, skin healing, skin lightening agents, skin protectants, skin smoothing agents, skin softening agents, skin soothing agents, stabilizers, sunscreen agents, surfactants, suspending agents, tanning accelerators, 10 thickeners, vitamins, waxes, wetting agents, liquefiers, colors, flavors and/or fragrances. Suitable materials which serve the additive functions listed here are well known in the cosmetic industry. a listing of the additive function and materials suitable for incorporation into the cosmetic composition may be found in Appendix A, which is appended hereto at the end of the specification. Further information may be obtained 15 by reference to The Cosmetic Bench Handbook, Cosmetics & Toiletries, C.C. Urbano, editor, Allured Publ. Corp., 1996. which is hereby incorporated in its entirety by reference.

A brief description of some preferred additives and cosmetically active agents follows. The compositions of the invention include a safe and effective amount of a 20 cosmetically active agent. "Safe and effective", as it is used herein, means an amount high enough to significantly positively modify the condition to be treated or the cosmetic effect to be obtained, but low enough to avoid serious side effects.

Preservative can be desirably incorporated into the cosmetic compositions of the invention to protect against the growth of potentially harmful microorganisms. Suitable 25 preservatives include, but are not limited to, alkyl esters of parahydroxybenzoic acid, hydantoin derivatives, parabens, propionate salts, triclosan tricarbanilide, tea tree oil, alcohols, farnesol, farnesol acetate, hexachlorophene and quaternary ammonium salts, such as benzolconjure, and a variety of zinc and aluminum salts. Cosmetic chemists are familiar with appropriate preservatives and may select that which provides the

required product stability. Preservatives are preferably employed in amounts ranging from about 0.0001% to 2% by weight of the composition.

Emollients can be desirably incorporated into the cosmetic compositions of the invention to provide lubricity to the formulation. Suitable emollients may be in the form of volatile and nonvolatile silicone oil, highly branched hydrocarbons and synthetic esters. Amounts of emollients may be in the range of about 0.1-30 wt%, and preferably about 1-20 wt%. By way of example only, suitable silicones include cyclic or linear polydimethylsiloxanes, polyalkylsiloxanes, polyalkylarylsiloxanes and polyether siloxanes. By way of example only, suitable ester emollients include alkenyl esters of fatty acids, polyhydric alcohols, such as ethylene glycol mono and di-fatty acid esters, polyethylene glycol and the like, ether-esters, such as fatty acid esters of ethoxylated fatty alcohols, wax esters, such as beeswax, spermaceti, myristyl myristate and stearyl stearate, and sterol esters such as cholesterol fatty acids.

A variety of oily emollients may be employed in the compositions of this invention. These emollients may be selected from one or more of the following classes: 1. Triglyceride esters such as vegetable and animal fats and oils. Examples include castor oil, cocoa butter, safflower oil, cottonseed oil, corn oil, olive oil, cod liver oil, almond oil, avocado oil, palm oil, sesame oil, squalene, Kikui oil and soybean oil; 2. Acetoglyceride esters, such as acetylated monoglycerides; 3. Ethoxylated glycerides, such as ethoxylated glyceryl monostearate; 4. alkyl esters of fatty acids having 10 to 20 carbon atoms, such as, methyl, isopropyl, and butyl esters of fatty acids, and including hexyl laurate, isohexyl laurate, isohexyl palmitate, isopropyl palmitate, decyl oleate, isodecyl oleate, hexadecyl stearate, decyl stearate, isopropyl isostearate, diisopropyl adipate, diisohexyl adipate, dihexyldecyl adipate, diisopropyl sebacate, lauryl lactate, myristyl lactate, and cetyl lactate; 5. Alkenyl esters of fatty acids having 10 to 20 carbon atoms, such as oleyl myristate, oleyl stearate, and oleyl oleate and the like; 6. Fatty acids having 10 to 20 carbon atoms, such as pelargonic, lauric, myristic, palmitic, stearic, isostearic, hydroxystearic, oleic, linoleic, ricinoleic, arachidic, behenic, and erucic acids and the like; 7. Fatty alcohols having 10 to 20 carbon atoms, such as, lauryl, myristyl, cetyl, hexadecyl, stearyl, isostearyl, hydroxystearyl, oleyl,

ricinoleyl, behenyl, erucyl, and 2-octyl dodecanyl alcohols are examples of satisfactory fatty alcohols and the like; 8. Fatty alcohol ethers, such as ethoxylated fatty alcohols of 10 to 20 carbon atoms including the lauryl, cetyl, stearyl, isostearyl, oleyl, and cholesterol alcohols, having attached thereto from 1 to 50 propylene oxide groups; 9. 5 Ether-esters such as fatty acid esters of ethoxylated fatty alcohols; 10. lanolin and derivative, such as lanolin, lanolin oil, lanolin wax, lanolin alcohols, lanolin fatty acids, isopropyl lanolate, ethoxylated lanolin, ethoxylated lanolin alcohols, ethoxylated cholesterol, propoxylated lanolin alcohols, acetylated lanolin alcohols, lanolin alcohols linoleate, lanolin alcohols ricinoleate, acetate of lanolin alcohols ricinoleate, acetate of 10 ethoxylated alcohols-esters, hydrogenolysis of lanolin, ethoxylated hydrogenated lanolin, ethoxylated sorbitol lanolin, and liquid and semisolid lanolin absorption bases and the like; 11. Polyhydric alcohol esters, such as, ethylene glycol mono and di-fatty acid esters, diethylene glycol mono- and di-fatty acid esters, polyethylene glycol (200-6000) mono- and di-fatty acid ester, propylene glycol mono- and di-fatty acid esters, 15 polypropylene glycol 2000 monooleate, polypropylene glycol 2000 monostearate, ethoxylated propylene glycol monostearate, glyceryl mono- and di-fatty acid esters, polyglycerol polyfatty esters, ethoxylated glyceryl monostearate, 1,2-butylene glycol monostearate, 1,2-butylene glycol distearate, polyoxyethylene polyol fatty acid ester, sorbitan fatty acid esters, and polyoxyethylene sorbitan fatty acid esters are satisfactory 20 polyhydric alcohol esters; 12. Waxes such as beeswax, spermaceti, myristyl myristate, stearyl stearate; 13. Beeswax derivatives, e.g., polyoxyethylene sorbitol beeswax; 14. Vegetable waxes including carnauba and candelilla waxes; 15. Phospholipids such as lecithin and derivatives; 16. Sterol including cholesterol and 25 cholesterol fatty acid esters; 17. Amides such as fatty acid amides, ethoxylated fatty acid amides, solid fatty acid alkanolamides.

Humectants may be added to the composition to increase the effectiveness of the emollient, to reduce scaling, to stimulate removal of built-up scale and improve skin feel. by way of example only, suitable humectants include polyhydric alcohols, such a glycerol, polyalkylene glycols, alkylene polyols, their derivatives, propylene glycol, 30 dipropylene glycol, polypropylene glycol, polyethylene glycol, sorbitol, hydroxypropyl

sorbitol, hexylene glycol, 1,3-butylene glycol, 1,2,6-hexanetriol, ethoxylated glycerol, propoxylated glycerol and the like. The amount of humectant may be in the range of about 0.5-30 wt% and preferably between 1-15 wt%.

5 In topical skin care applications, a variety of active substances may be advantageously employed. by way of example, only suitable active agents which may be incorporated into the cosmetic composition include anti-aging active substances, anti-wrinkle active substances, hydrating or moisturizing or slimming active substances, depigmenting active substances, substances active against free radicals, anti-irritation active substances, sun protective active substances, anti-acne active substances, firming-
10 up active substances, exfoliating active substances, emollient active substances, and active substances for the treating of skin disorders such as dermatitis and the like.

15 By way of example only, in the case of hydration, one or more moisturizers may be used, such as glycerin or urea, in combination with one or more precursor agents for the biosynthesis of structural proteins, such as hydroxyproline, collagen peptides, and the like.

By the way of example only, in case of slimming, at least one ketolytic agent or an alpha-hydroxyacid such as a salicylic acid or 5-n-octanoic salicylic acid may be used in combination with at least one liporegulating agent such as caffeine.

20 By way of example only, in the case of depigmentation, at least one keratolytic agent is used in combination with a depigmenting agent such as hydroquinone, tyrosinase inhibitor (kasic acid), kojic acid and sodium metabisulfite and the like.

By way of example only, in the case of protection against free radical agents, vitamin E (against CO₂ radicals), superoxide dismutase (against O₂ free radicals) and sugar and caffeine (against OH free radicals).

25 By way of example only, in the case of anti-aging, moisturizers, sunscreens, alpha-hydroxyacids, salicylic acid or surface restructuring agents may be used in combination with enzymes for the repair of DNA, vascular protective agents or phospholipids rich in oligoelements and polyunsaturated fatty acids.

By way of example only, in the case of anti-acne agents, keratolytics, such as salicylic acid, sulfur, lactic acid, glycolic, pyruvic acid, urea, resorcinol and N-acetylcysteine, and retinoids, such as retinoic acid and its derivatives may be used.

By way of example only, in the case of anti-inflammation, non-steroidal anti-inflammatory agents (NSAIDS) may be used, such as propionic acid derivatives, acetic acid, fenamic acid derivatives, biphenylcarboxylic acid derivatives, oxicams, including but not limited to aspirin, acetaminophen, ibuprofen, naproxen, benoxaprofen, flurbiprofen, fenbufen, ketoprofen, indoprofen, pirprofen, carprofen, and bucloxic acid and the like.

10 By way of example only, in the case of antibiotic and antimicrobials may be included in the composition of the invention. Antimicrobial drugs preferred for inclusion in compositions of the present invention include salts of β -lactam drugs, quinolone drugs, ciprofloxacin, norfloxacin, tetracycline, erythromycin, amikacin, triclosan, doxycycline, capreomycin, chlorhexidine, chlortetracycline, oxytetracycline, 15 clindamycin, ethambutol, hexamidine isethionate, metronidazole, pentamidine, gentamicin, kanamycin, lineomycin, methacycline, methanamine, minocycline, neomycin, netilmicin, paromomycin, streptomycin, tobramycin, miconazole and amanfadine and the like.

20 By way of example only, in the case of sunscreen protection, suitable agents include 2-ethylhexyl p-methoxycinnamate, 2-ethylhexyl N,N-dimethyl-p-aminobenzoate, p-aminobenzoic acid, 2-phenyl p-methoxycinnamate, 2-ethylhexyl octocrylene, oxybenzone, homomenthyl salicylate, octyl salicylate, 4,4'-methoxy- α -butyldibenzoylmethen, 4-isopropyl dibenzoylmethane, 3-benzylidene camphor, 3-(4-methylbenzylidene) camphor, titanium dioxide, zinc oxide, silica, iron oxide, and mixtures thereof and the like. The sunscreening agents disclosed therein have, in a 25 single molecule, two distinct chromophore moieties which exhibit different ultra-violet radiation absorption spectra. One of the chromophore moieties absorbs predominantly in the UVB radiation range and the other absorbs strongly in the UVA radiation range. These sunscreening agents provide higher efficacy, broader UV absorption, lower skin 30 penetration and longer lasting efficacy relative to conventional sunscreens. Generally,

the sunscreens can comprise from about 0.5% to about 20% of the compositions useful herein. Exact amounts will vary depending upon the sunscreen chosen and the desired Sun Protection Factor (SPF). SPF is a commonly used measure of photoprotection of a sunscreen against erythema.

5 By way of example only, in the case of sunless tanning agents include, dihydroxyacetone, glyceraldehyde, indoles and their derivatives, and the like.

The composition may include cleansing surfactants. Cleansing surfactants are cationic, anionic, amphoteric or non-ionic surfactants which are water-soluble and produce a consumer-acceptable amount of foam. Non-ionic surfactants are well-known 10 materials and have been used in cleansing compositions. Therefore, suitable non-ionic surfactants include, but are not limited to, compounds in the classes known as alkanolamides, block copolymers of ethylene and propylene, ethoxylated alcohols, ethoxylated alkylphenols, alkyl polyglycosides and mixtures thereof. In particular, the non-ionic surfactant can be an ethoxylated alkylphenol, i.e., a condensation product of 15 an alkylphenol having an alkyl group containing from about 6 to about 12 carbon atoms in either a straight chain or branched chain configuration with ethylene oxide, the ethylene oxide being present in an amount equal to at least about 8 moles ethylene oxide per mole of alkylphenol. Examples of compounds of this type include nonylphenol condensed with about 9.5 moles of ethylene oxide per mole of phenol; 20 dodecylphenol condensed with about 12 moles of ethylene oxide per mole of phenol; dinonylphenol condensed with about 15 moles of ethylene oxide per mole of phenol; octylphenol condensed with about ten moles of ethylene oxide per mole of phenol; and diisooctyl phenol condensed with about 15 moles of ethylene oxide per mole of phenol.

A wide variety of acids, bases, buffers, and sequestrants can be utilized to adjust 25 and/or maintain the pH and ionic strength of the compositions useful in the instant invention. Materials useful for adjusting and/or maintaining the pH and/or the ionic strength include sodium carbonate, sodium hydroxide, hydrochloric acid, phosphoric acid, sulfuric acid, acetic acid, sodium acetate, sodium hydrogen phosphate, sodium dihydrogen phosphate, citric acid, sodium citrate, sodium bicarbonate, triethanolamine, 30 EDTA, disodium EDTA, tetrasodium EDTA, and the like.

The polymer network may be useful as a solubilization agent in cosmetic and personal care applications. A self-assembling system comprising the reversibly gelling polymer network exhibits thermogelation, pH sensitivity, and the ability to solubilize hydrophobic agents in aqueous media. When poloxamer is copolymerized with 5 poly(acrylic acid) (PAA) according to the invention, the resulting copolymer network is bioadhesive and can be applied in a number of therapies. The materials described in this invention combine "reverse" thermoviscosification mucoadhesion, solubilization of hydrophobic and difficult to manage moieties, easy formulation, and protection of agents from degradation to provide a superior medium for cosmetic and personal care 10 products.

The reversible viscosification of the polymer network at elevated temperatures makes the materials idea for use as thickening agents in cosmetic and personal care products at any temperature above the transition. Another use of the "thickening" of solutions containing the polymer network as a thickener supplement in emulsions. 15 Currently, emulsifiers are often negatively affected by increased temperatures. An additive with reverse thermal viscosification properties, however, would react in exactly the opposite way, increasing its ability to emulsify as it gained three-dimensional structure upon heating above its transition temperature.

In the applications where the reversibly gelling polymer composition can act as 20 a surfactant, the polymer network will have the ability to act as a primary emulsifier without any (or with very little) addition of traditional surfactant. The responsive polymer network will also act as a stabilizer for oil soluble ingredients that would conventionally need to be solubilized by oils in formulation. The hydrophobic portion 25 of the polymer network (PPO) forms domains which act as reservoirs for an oil-soluble or hydrophobic additive, such as an oil droplet, as is illustrated in Figure 9. These two features of the material of the invention would enable it to be used as a base in a cosmetic formulation that would be non-greasy due to lack of oils, such as petrolatum and mineral oil. The increase in viscosity above the transition temperature adds structure and yield value to the water phase and results in a highly stable emulsion.

Thus, poloxamer:poly(acrylic acid) polymer network compositions are valuable materials in the formulation of cosmetic and personal care products. In particular, they may be useful as rheology modifiers, provide a cushioning effect on the skin, offer barrier properties and controlled release of actives. In addition, the polymer 5 composition may serve as a surfactant and is compatible with most ingredients used in the cosmetic industry.

The above properties of the poloxamer:poly(acrylic acid) polymer network provides a cosmetic composition that spreads evenly and smoothly and which leaves a lubricious feel to the skin. A sensory evaluation was conducted with seven random 10 volunteers in order to determine the sensory effect of a cream formulation on the skin. An oil-free cosmetic formulation was prepared substantially as set forth in Example 33(b) and was compared to Nivea Oil Free, a product of Beiersdorf of Germany. Volunteers placed unmarked samples on the skin and evaluated the formulation based upon its feel and texture. The samples were rated on a scale of 1 (bad) to 5 (good). 15 The oil-free cosmetic formulation of the present invention scored equally to the Nivea Oil Free moisturizing product. Both samples scored a 3.5 on the rating scale.

The observed thermal behavior of the reversibly gelling polymer network suggests that the increase in viscosity is due to aggregation of the hydrophobic portion of the poloxamer at the transition temperature which, because of bonding with the 20 poly(acrylic acid) component, serve as temporary cross-links which physically bridge adjacent chains of poly(acrylic acid) to provide a viscous gel-like extended polymer structure. The aggregation process may be understood as occurring as shown in Figure 10, in which a backbone 20 represent poly(acrylic acid), a thin band 24 represents the hydrophobic poly(propylene) glycol region of the poloxamer and a thick band 26 represents the hydrophilic poly(ethylene glycol) region of the poloxamer. Below the 25 transition temperature, the polymer network is randomly arranged, as is shown in Figure 10(a). At or above the transition temperature, the hydrophobic regions 24 associate to form aggregations or micelles 28, as is shown in Figure 10(b). The association increases the effective molecular weight of the polymer network 30 composition with the corresponding increase in viscosity.

A general method of making the poloxamer:PAA polymer network compositions of the present invention comprises solubilization of the poloxamer in acrylic acid monomer, followed by polymerization of the monomer to PAA. Polymerization may be accomplished by addition of a polymerization initiator or by irradiation techniques.

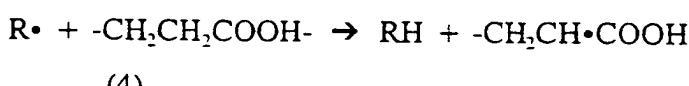
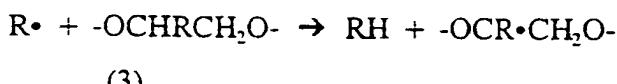
5 The initiator may be a free radical initiator, such as chemical free radical initiators and UV or gamma radiation initiators. Conventional free radical initiators may be used according to the invention, including, but in no way limited to ammonium persulfate, benzoin ethyl ether, benzyl peroxide, 1, 2'-azobis(2,4-dimethylpentanitrile) (Vazo 52) and azobisisobutyronitrile (AIBN). Initiation may also be accomplished using cationic 10 or ionic initiators. many variations of this method will be apparent to one skilled in the art and are contemplated as within the scope of the invention. For example, the poloxamer component may be dissolved in an acrylic acid/water mixture instead of pure monomer. It may be desirable to remove unreacted monomer and/or free poloxamer from the resultant polymer network. This may be accomplished using conventional 15 techniques, such as, by way of example, dialysis or soxhlet extraction.

Without intending to be bound by a particular mechanism or structure, the following scheme represents a possible chemical mechanism for the formulation of the system here described. These mechanisms are presented by way of explanation and are no way limiting of the invention. It is contemplated that these or other mechanistic 20 routes may in fact occur in the formation of the polymer network of the present invention.

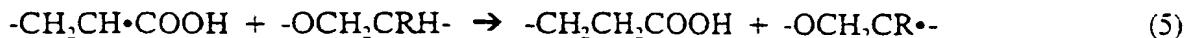
I. Initiation



25 II. Hydrogen Abstraction



30 III. Chain Transfer



IV. Propagation



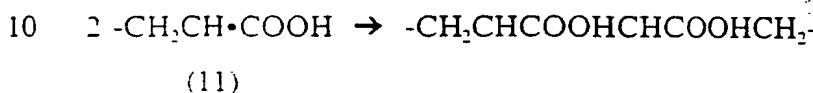
5 V. Side Chain Branching Off AA Backbone



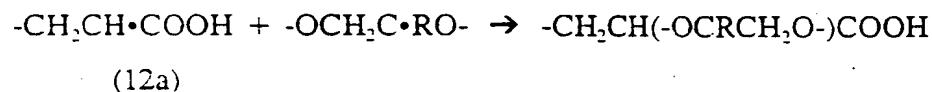
VI. AA Branching Off Poloxamer Backbone



VII. Homogenous Termination



VIII. Heterogenous Termination with Bonding of Pluronic to PAA



15 The scheme for bonding of poloxamer to acrylic acid may involve initiation (Eq. 1), hydrogen abstraction from the propylene or ethylene moiety of the poloxamer (Eq. 3), and attachment to acrylic acid via addition across the unsaturated bond (Eq. 10). Propagation (Eq. 8) leads to the final PAA.

20 Alternatively, the mechanism may proceed by initiation according to Eqs. (1) and (2), propagation to form PAA (Eq. 8), a chain transfer reaction to generate a reactive poloxamer moiety (Eq. 5), followed by addition of the reactive poloxamer moiety to the unsaturated bond of acrylic acid (Eq. 10) and subsequent propagation of the PAA chain.

25 Thus, the polymer network may include a plurality of poly(acrylic acid) units bounded to a single poloxamer unit, or alternatively, a plurality of poloxamer units bound to a single PAA backbone. Combinations of these alternatives are also a possibility.

Reverse phase polymerization may be used to prepare polymer network beads
30 by dispersion of the poloxamer and acrylic acid monomer mixture in a nonpolar solvent

such as hexane or heptane. The aggregating polymer/monomer solution is dispersed with agitation in the nonpolar solvent in order to suspend droplets of the solution. Polymerization of the monomer is initiated by conventional means (i.e., addition of an initiator or irradiation) in order to polymerize the monomer and form responsive 5 polymer network beads. See U.S.S.N. 08/276,532 filed July 18, 1995 and entitled "Useful Responsive Polymer Gel Beads" for further information on the preparation of polymer gel beads, herein incorporated by reference. Such a method may be particularly desirable to provide a heat sink for the heat generated in the exothermic polymerization reaction.

10 The polymer network complexes and aqueous gelling solutions of the present invention may be understood with reference to the following examples, which are provided for the purposes of illustration and which are in no way limiting of the invention.

15 Example 1. This example describes the synthesis of a polymer network and an aqueous responsive polymer network solution prepared using a triblock polymer of poly(ethylene glycol) and poly(propylene glycol), Pluronic® F27 polyol, and poly(acrylic acid). This example also characterizes the gelation and the physical properties of the resultant polymer network.

20 Synthesis. Block copolymer of poly(propylene glycol) (PPG) and poly(ethylene glycol) (PEG) having triad ABA structure $(PEG)_A(PPG)_B(PEG)_A$ (Pluronic® F127 NF polyol. Poloxamer 407 NF polyol, where "F" means Flakes. "12" means $12 \times 300 = 3600$ - MW of the PPG section of the block copolymer. "7" PEG in the copolymer is 70 wt %, and nominal molecular weight is 12,600) from BASF (3.0 g) was dissolved in 3.0 g acrylic acid (Aldrich). This represents a substantially 1:1 weight ratio of Pluronic® 25 F127 polyol and poly(acrylic acid). The solution was deaerated by N_2 bubbling for 0.5 h and following addition of 100 ml of freshly prepared saturated solution of ammonium persulfate (Kodak) in deionized water was kept at 70°C for 16 h resulting in a transparent polymer.

30 Viscosity measurements. A known amount of the resultant polymer was suspended in 100 ml deionized water into which NaOH was added. Following swelling

for 3 days while stirring, the pH of the resulting fine suspension was adjusted to 7. Samples of 15 ml each were taken, and pH in each vial was adjusted to desired value by addition of 1 M HCl or NaOH. Samples were then kept overnight and their viscosities were measured at different temperatures using Brookfield viscometer using either an 5 SC4-18 or an SC4-25 spindle.

A control experiment was done with a physical blend of Pluronic® F127 polyol and poly(acrylic acid) (MW 450,000) available from Aldrich. Pluronic® F127 polyol and poly(acrylic acid) were dissolved together in deionized water at 1 wt% total 10 polymer concentration and the resultant solution was adjusted to pH 7, stirred and kept in refrigerator. The responsiveness of the polymer network composition and the physical blend to temperature and pH is illustrated in figs. 1, 11, and 12. Figs. 1 and 2 clearly demonstrate that the synthetic route outlined above resulted in a polymer 15 network system that is sensitive to pH and temperature of the environment. Note that the liquid-gel transition is very sharp, occurring over a very small temperature change of pH (see Figure 11). Figure 12 is a viscosity vs. temperature graph comparing the gelling characteristics of the responsive polymer network composition and the physical blend. The blend prepared by physically mixing the triblock PEG/PPG/PEG polymer and poly(acrylic acid) did not exhibit viscosifying effect either as a function of 20 temperature or pH.

It was generally observed that 0.5 - 5 wt% polymer network compositions made 25 of Pluronic® F127 polyol and poly(acrylic acid) viscosify at temperatures of around 30°C and higher if pH is adjusted to 6 or higher. The gelling effect was observed in polymer network compositions standing 3 months or longer. Repeated heating and cooling of responsive polymer network compositions did not cause deterioration of the polymer network or the gelling effect. Solutions of either Pluronic® F127 polyol or poly(acrylic acid) (1-5 wt% in water, adjusted to pH 6 or higher) or physical blends of 30 the two lacked the reverse thermal gelling effects found for polymer network compositions.

Example 2. this example describes a standard operating procedure for the manufacture of the reversible gelling polymer network.

The procedure is based upon a 50 liter production. A NaOH solution was prepared by dissolving 131.8 g NaOH pellets in 131.8 mL DI water (50% solution). The NaOH was allowed to dissolve completely. The NaOH solution will be used to convert a percentage of the acrylic acid to sodium acrylate in situ. Acrylic acid monomer (4 kg) is charged into a monomer feed tank and agitated at 250 rpm. NaOH is added slowly. The precipitate formed as the acrylic acid is neutralized to sodium acrylate is allowed to dissolve. Pluronic® F 127 (3.5 kg) is slowly added to the monomer feed tank. Pluronic® F127 is dissolved under continued agitation. Norpar 12 (a refined C-12 alkane) is added to the reaction vessel (37 L). The mixture is agitated at 100 rpm. Stabilizer solution of Ganex V-126 is prepared in 2L Norpar 12 and added to the reactor under agitation.

A reaction vessel was degassed using a nitrogen sparge introduced from the bottom of reactor and was continued throughout the reaction. Initiator (13.63 g Lauryl peroxide and 4.23 g Vazo 52 in 0.7 kg acrylic acid monomer) is introduced into the monomer solution. the monomer solution was transferred to the reaction vessel. Agitation was increased to 150 rpm. Nitrogen sparging continued for an additional 20 minutes, and then heating began. heating began at a rate of 0.5 -1.0°C/min up to 75°C. The reaction began to exotherm at about 45-50°C and is allowed to continue without cooling until a maximum is reached. It is then cooled to 75°C using forced cooling. The reaction continued for 12 hours and was then cooled to 35°C. The slurry was transferred into pails and the polymer beads were allowed to settle.

The slurry was filtered through Buchner Funnels with filter paper (11 μ m pore size) until the bulk of the Norpar had been removed from the beads. The beads were washed three times with heptane. The filtered beads were transferred to a Pyrex drying tray and spread on the tray in a uniform layer. The beads were dried under vacuum for 4 hours at 40-50°C. The dried beads were analyzed as follows.

Elemental analysis. The elemental analysis was performed by Quantitative Technologies, Inc., Whitehouse, NJ using a Perkin Elmer 2400 CHN Elemental Analyzer. Analysis provided C (52.49%), H (7.50%), N (< 0.05%), the balance assumed to be oxygen (39.96%).

Thermal Gravimetric Analysis (TGA). The TGA method was performed by Massachusetts Material Research, Inc., West Boylston, MA using a Dupont TGA model 295. The assay was run using a temperature ramp from 30 to 500°C/min. The resolution for the system was set to 4 (1.0°C/min for all slope changes). The data was 5 analyzed using the first derivative of the curve and using maxima and minima to mark transitions. The moisture content was also calculated in this manner. The first derivative yielded three maxima. The first transition (moisture) was 3.0% by weight, the second transition was 14.0% by weight, and the third was 67.02% by weight. Residue (15.98%) remained.

10 Molecular weight determination by gel permeation chromatography (GPC). The molecular weight was determined by GPC on a Hewlett Packard 1100 Liquid Chromatography system with a Viscotech T60 Triple Detector system. Three Waters Ultrahydrogel columns, 1000, 500 and 250 Å, were used for the separation. The mobile phase was 0.1 M NaNO₃ and 0.01 M K₂HPO₄ salt solution, pH adjusted with 15 phosphoric acid to a pH of 8.0 ± 0.1. the flow rate for the separation was 0.9 mL/min. The column temperature was maintained at 15°C. The injection volume for the assay was 50 µL. A PEG molecular weight standard of 23,000 Daltons was used to align the detectors. The result for the assay were:

M_n : 341,700 Daltons

20 M_p : 1,607,000 Daltons

M_w : 2,996,000 Daltons

25 Free poloxamer determination by GPC. The amount of free (unbound) poloxamer in the polymer matrix was determined using the above GPC method and comparing the poloxamer peaks to that of a standard poloxamer solution. The typical result is approximately 18-22% free poloxamer by weight.

30 The effect of both the bonded and non-bonded poloxamer on the gelation properties of the responsive polymer network has been determined by extraction of the non-bonded poloxamer from the material. Such extraction studies have established that the graft co-polymer alone exhibits the characteristic reverse thermal gelation of the composition; however, the presence of non-bonded poloxamer component modulates

the gelation process. The non-bonded poloxamer component can affect the temperature of transition (from liquid to gel) and the degree of transition and assists in a more controlled and reproducible transition.

5 Bound poloxamer determination by ethylene oxide (EO) titration. The EO titration was performed as follows. A 5 gm sample of the product polymer was extracted in dichloroethane for three hours at reflux temperatures. The solid is removed and dried under a vacuum for 12 hours at room temperature. The dry material is then analyzed using ASTM method D 2959-95, "Standard Test Method for Ethylene Oxide Content". The amount of EO in the sample is related to the amount of poloxamer 10 bound to the polymer. The typical result is approximately 15% by weight of EO.

15 The relative amount of free poloxamer may be varied dependent upon the relative proportions of starting materials and the method of polymerization. Although the residual solids presumably contain only poloxamer which is bounded to the poly(acrylic acid), i.e., a graft co-polymer, the material still shows strong viscosification when it is neutralized and dissolved in water. However, the temperature of viscosification is increased substantially and the degree of viscosification per gram of total solids is increased by removal of free poloxamer. Thus, the free poloxamer plays a role in modifying the extent and temperature of viscosification. The poloxamer undergoes conformational changes and changes to the critical micelle concentration as a 20 function of temperature. The poloxamer will change from an open, non-aggregated form to a micellar, aggregated form with changes in temperature.

25 Residual acrylic monomer determination by gas chromatography (GC). The residual acrylic acid monomer was determined by GC analysis using a Hewlett Packard GC 5890A, using a HP-FFDAP-TPA 10 m x 0.52 mm x 1 μ m column. The sample was extracted and run in methanol. Using an internal standard ratio, the sample was compared to a one point calibration. The typical results for this assay were below 70 ppm acrylic acid monomer.

30 Residual Norpar solvent by GC. The residual Norpar in the sample was determined by GC using the above method and comparing the Norpar peaks to that of a standard. The typical results were below 1.5 wt%.

UV-vis spectrum. Optical clarity data of UV-vis spectrophotometer was obtained. A 1.0% solution in water was prepared and measured at 420 nm. Transmittance (%) was typically greater than 90%.

Differential scanning calorimetry (DSC). The DSC was performed by 5 Massachusetts Material Research, Inc., West Boylston, MA using a temperature ramp from 30 to 350°C at 5°C/min. The resolution for the system was set to 4 (1.0°C/min for all slope changes). The assay yielded one endothermic event at 265°C, typically 270 J/g.

Examples 3-9. These examples describe the synthesis of several reversible 10 thermal gelling polymer networks prepared using a variety of poloxamers and poly(acrylic acid). The gelation and the physical properties of the resultant polymer network compositions are reported in Table 2.

Table 2

Example	Poloxamer	Poloxamer Composition	Poloxamer: PAA	Trans. Temp.	Comments
3	Pluronic® F88 Prill polyol	2400 MW PPG; 80 wt% PEG; nominal MW 11,400	1:1	48°C	viscosity response curve shown in Figure 13
4	Pluronic® F127 NF polyol	3600 MW PPG; 70 wt% PEG; nominal MW 12,600	1:1	30°C	pentaerythritol triallyl ether crosslink agent used
5	Pluronic® P104 polyol	3000 MW PPG; 40 wt% PEG; nominal MW 5,900	1:1	28°C	viscosity response curve shown in Figure 14
6	Pluronic® P123 polyol	3600 MW PPG; 30 wt% PEG; nominal MW 5,750	1:1	25°C	viscosity response curve shown in Figure 15
7	Pluronic® F127/ Pluronic® F108 polyol blend (1:1)	as above	1:1.7	42°C	polymer solid formed, dried; resolubilized in neutralizing solution
8	Pluronic® F88 polyol	as above	1:1.7	80°C	polymer solid formed, dried; resolubilizing in neutralizing solution

9	Pluronic® F127/ Pluronic® F88 polyol blend (1:1)	as above	1:1.7	85 °C	polymer solid formed, dried; resolubilizing in neutralizing solution
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Example 10. The following example demonstrates the effect of hydrophilic/hydrophobic ratio on the gelling temperature. Polymer network 5 compositions were prepared from the following poloxamers shown in Table 3.

Table 3. Composition of Poloxamers Investigated.

triblock polyol polymer composition	MW of PPG block	wt% of PEG block
P103 (PEG) ₃₇ (PPG) ₅₆ (PEG) ₃₇	3250	50
P104 (PEG) ₂₅ (PPG) ₅₆ (PEG) ₂₅	3250	40
P105 (PEG) ₁₆ (PPG) ₅₆ (PEG) ₁₆	3250	30

Table 3 shows that in this series, the fraction of PEG is reduced when the molecular weight of the PPG block is kept constant. Linse (*Macromol.* **26**:4437-4449 (1993)) report phase diagrams for these copolymers in water were calculated and it was 20 shown that two-phase boundaries corresponding to the beginning of aggregation are almost unaffected by the molecular mass, given a constant PEG/PPG ratio, whereas these boundaries shifted to lower temperature as the PEG content of the polymer is reduced at constant mass. The strong dependence of the PEG/PPG ratio is a consequence of the differing solubilities of PEG and PPG in water at the elevated 25 temperatures. Thus, one would suppose that aggregation that causes viscosification in the responsive polymer network composition should shift to lower temperature as PEG fraction decreases.

The poloxamer (3.0 g) was dissolved in 3.0 g acrylic acid. The solution was deaerated by N₂ bubbling for 20 min. and following addition of the 100:1 of freshly 30 prepared saturated solution of ammonium persulfate in deionized water was kept at 70°C for 16 h resulting in a strong whitish polymer. A sample of the polymer obtained

(0.4 g) was suspended in 40 ml deionized water into which NaOH was added.

Suspended responsive polymer network particles were allowed to dissolve under constant stirring. The resulting 1 wt% polymer network solution were subjected to the viscosity measurement at shear rate of 132 or 13.2 sec⁻¹ using a SC4-18 spindle. It can

5 be seen from Figure 16 that, firstly, viscosity of the 1 wt% responsive polymer network solutions before viscosification (at 20-24°C) decreases in the series

(PEG)₃₇(PPG)₅₆(PEG)₃₇(F103) > (PEG)₂₅(PPG)₅₆(PEG)₂₅(F104) >

(PEG)₁₆(PPG)₅₆(PEG)₁₆(F105) and, secondly, the temperature at which gelation shifts from about 45°C for (PEG)₃₇(PPG)₅₆(PEG)₃₇ to about 35°C for (PEG)₂₅(PPG)₅₆(PEG)₂₅

10 and (PEG)₁₆(PPG)₅₆(PEG)₁₆. Both results are in excellent agreement with the theory set forth in Linse.

15 Example 11. The following example is related to release of and active agent from a poloxamer:poly(acrylic acid) polymer network. Drug loading and kinetics of release of the protein hemoglobin from poloxamer:poly(acrylic acid) polymer network is described.

Synthesis. Pluronic® F127 (3.0 g) was dissolved in 3.0 g acrylic acid. The solution was deaerated by N₂ bubbling for 0.5 h and following addition of 100 F1 of freshly prepared saturated solution of ammonium persulfate (Kodak) in deionized water was kept at 70°C for 16 h resulting in a transparent polymer. The resultant responsive polymer network obtained (5 g) was suspended in 95 ml deionized water into which NaOH was added. The resulting suspension was allowed to swell for 7 days.

20 Hemoglobin loading and release. A 5 wt% responsive polymer network composition (3 g) was allowed to swell for 16 h in 10 ml of 0.25 mg/ml solution of human hemoglobin (Sigma) in deionized water adjusted to pH 8. The resulting mixture was well shaken and placed into the feed chambers of customized vertical, static, Franz-like diffusion cells made of Teflon. The feed and receiver chambers of the diffusion cells were separated by mesh screens (#2063). The receiver chamber was continuously stirred by a magnetic bar. The cells were allowed to equilibrate to either 25 or 37°C (in an oven). The feed and receiver phases consisted of 1 g of the 25 hemoglobin-loaded responsive polymer network and 6 ml of phosphate-buffered saline

30

(pH 7.4), respectively. In the control experiment, the feed phase was made of 1 g of 0.25 mg/ml hemoglobin solution. After the feed solution had been loaded into the cell, the kinetic time commenced. Samples of the receiver phase was withdrawn from time to time and their absorbance was measured spectrophotometrically at 400 nm. To 5 calculate hemoglobin concentrations, corresponding calibration curves (absorbance in PBS versus hemoglobin concentration) were generated. The results of the kinetic experiment are presented in Figure 17. It can be seen that the rate of hemoglobin release from the polymer network was substantially lowered at 37°C when compared to that at 25°C, because of viscosity increase in the polymer network at elevated 10 temperatures (see Figure 1). The protein released from the polymer network composition still retained its native structure, as was determined by comparison of UV-vis spectra of release hemoglobin and natural hemoglobin.

15 Example 12. The following example is related to release of an active agent from a poloxamer:poly(acrylic acid) polymer network. Drug loading and kinetics of release of the protein lysozyme from a polymer network is reported.

Lysozyme loading and release. A 5 wt% responsive polymer network composition (3 g) was allowed to swell for 16 h in 10 ml of 1 mg/ml solution of chicken egg-white lysozyme (Sigma) and 1.5 mg/ml sodium dodecyl sulfate (Aldrich) in deionized water adjusted to pH 8.5. The resulting mixture was well shaken and 20 placed into the feed chambers of customized vertical, static, Franz-like diffusion cells made of Teflon. The feed and receiver chambers of the diffusion cells were separated by mesh screens (#2063). The receiver chamber was continuously stirred by a magnetic bar. The cells were allowed to equilibrate to either 25 or 37°C (in an oven). The feed and receiver phases consisted of 1 g of the lysozyme-loaded responsive 25 polymer network and 6 ml of phosphate-buffered saline (pH 7.4), respectively. In the control experiment, the feed phase was made of 1 g of 1 mg/ml lysozyme solution. After the feed solution had been loaded into the cell, the kinetic time commenced. Samples were withdrawn and their absorbance measured spectrophotometrically at 280 nm. A calibration curve was prepared for lysozyme concentration ranging from 0 30 mg/ml to 0.5 mg/ml in phosphate buffered saline. The results of the kinetic experiment

are presented in Figure 18. It can be seen that the rate of lysozyme release from the responsive polymer network composition was substantially lowered at 37°C when compared to that at 25°C, because of viscosity increase in responsive polymer network at elevated temperatures (see Figure 1).

5 In order to demonstrate the retention of the enzymatic activity of lysozyme, the lysozyme released from the responsive polymer network composition was assayed using Micrococcus lysodeikticus cells and compared to that of original lysozyme. The enzymatic activity of lysozyme was the same, within the error of the assay (15%), as that of the original lysozyme. Control without lysozyme in presence of sodium dodecyl 10 sulfate did not show any appreciable lysis of the cells.

Example 13. The following example is related to release of an active agent from a poloxamer:poly(acrylic acid) polymer network. Drug loading and kinetics of release of insulin from a responsive polymer network composition is reported.

15 Insulin loading and release. A 5 wt% responsive polymer network composition (3 g) was allowed to swell for 15 h in 10 ml of 5 mg/ml solution of bovine Zn²⁺-insulin (Sigma) in deionized water adjusted to pH 7. The resulting mixture was well shaken and placed into the feed chambers of customized vertical, static, Franz-like diffusion cells made of Teflon. The feed and receiver chambers of the diffusion cells were separated by mesh screens (#2063). The receiver chamber was continuously stirred by 20 a magnetic bar. The cells were allowed to equilibrate to either 25 or 37°C (in an oven). The feed and receiver phases consisted of 1 g of the insulin-loaded responsive polymer network and 6 ml of phosphate-buffered saline (pH 7.4), respectively. In the control experiment, the feed phase was made of 1 g of 5 mg/ml insulin solution. After the feed solution had been loaded into the cell, the timing commenced. Samples were 25 withdrawn and their absorbance was measured spectrophotometrically at 280 nm. A calibration curve was prepared for insulin concentration ranging from 0 mg/ml to 1.25 mg/ml in phosphate buffered saline. The results of the kinetic experiment are presented in Figure 19. The rate of insulin release from responsive polymer network was substantially lowered at 37°C when compared to that at 25°C, because of viscosity 30 increase in responsive polymer network at elevated temperatures (see Figure 1).

Example 14. This example demonstrates the preparation of a sterile reversibly gelling polymer network aqueous composition and the stability of the composition to sterilization. The polymer network is prepared as described in Example 1, except that the composition is prepared at 2 wt% Pluronic® F127 polyol/poly(acrylic acid). After 5 dissolution of the 2 wt% polymer network in water, the viscosity is measured. The composition then is sterilized by autoclaving at 121°C, 16 psi for 30 minutes. Viscosity is determined after sterilization. The corresponding curves for viscosity (a) before and (b) after sterilization are shown in Figure 20 and establish that minimal change in the viscosity profile of the material has occurred with sterilization.

10 Examples 15-30. These examples show additives which may be used to affect the transition temperature overall viscosification of the polymer network composition. A 1 wt% polymer network was prepared in deionized water at pH 7 in which a variety of additives were included in the composition. The effect of the additive was determined by generation of a Brookfield viscosification curve. Results are reported in 15 Table 4.

Table 4.

Example No.	Additive (wt%)	Effect of additive on:	
		Transition Temp. (°C)	Final Viscosity (% change)
15	1,2-methyl pyrrolidone (5)	I (1.8)	N
16	Rhodapex CO-436 (2)	I (1.6)	N
20	Dow Corning 190 (2)	I (5)	I (150)
18	isopropyl alcohol (0.5)	I (3.1)	I (45)
19	Pluronic® L122 (1)	D (4.4)	D (13)
20	Pluronic® F88 (1)	N	I (41)
21	Tween 80 (0.5)	N	I (18)
25	Germaben® II (1)	D (9)	I (100)
23	Iconol NP-6 (1)	D (9)	I (500)
24	Plurafac C-17 (0.5)	I (5.2)	D (36)
25	Dow Corning 193 (0.75)	I (4.1)	D (12)

Example No.	Additive (wt%)	Effect of additive on:	
		Transition Temp. (°C)	Final Viscosity (% change)
26	glycerin (5)	D (2)	N-
27	UC 50-HB 170/EO/PO random copolymer (0.5)	N	N
28	PVP K15 (1)	N	N
29	MAPTAC (1)	N	D (8)
30	potassium chloride (0.25)	N	D (34)

I = increase; D = decrease; and N = no change

5 Example 31. Because of the surfactant nature of the polymer network composition coupled with the gelation effect of the polymer network composition, it is
10 possible to prepare formulations which are 100% water-based, but which are lubricous and thick.

15 Formulations including a nonionic surfactant formulation: An O/W (oil-in-water) emulsion was made by combining the following ingredients utilizing conventional mixing techniques:

15

Table 5.

Ingredient	% w/w
10 % wt. 1:1 responsive polymer network as prepared in Example 1	20.0
Emulsifying Wax NF ¹	2.5
Mineral Oil	5.0

20 ¹ Polowax available from Croda

20

25 Into a vessel equipped with a high efficiency homogenizer, the formula amount of all ingredients is added, water is added to 100% w/w and allowed to mix to homogeneity. This formulation contains a nonionic surfactant and gives an emulsion that is fluid at room temperature but viscosifies above 32°C.

5 Formulations including a cationic surfactant formulation: An O/W (oil-in-water) emulsion was made by combining the following ingredients utilizing conventional mixing techniques:

10 **Table 6.**

Ingredient	% w/w
10 % wt. 1:1 responsive polymer network as prepared in Example 1	20.0
Behentrimonium Methosulfate (and) Cetearyl alcohol ¹	2.5
Mineral Oil	5.0

15 ¹Incroquat Behenyl TMS available from Croda

20 Into a vessel equipped with a high efficiency homogenizer, the formula amount of all ingredients is added and allowed to mix to homogeneity. This formulation contains a cationic surfactant and gives an emulsion that is fluid at room temperature but viscosifies above 32°C.

25 Formulations including an anionic surfactant formulation: An O/W (oil-in-water) emulsion was made by combining the following ingredients utilizing conventional mixing techniques:

20 **Table 7.**

Ingredient	% w/w
10 % wt. 1:1 responsive polymer network as prepared in Example 1	20.0
Cetearyl Phosphate (and) Cetearyl alcohol ¹	2.5
Mineral Oil	5.0

25 ¹Crodafos CES available from Croda

30 Into a vessel equipped with a high efficiency homogenizer, the formula amount of all ingredients is added. water is added to 100% w/w and allowed to mix to homogeneity. This formulation contains an anionic surfactant and gives an emulsion that is fluid at room temperature but viscosifies above 32°C.

Example 32. Acne Medication: An oil-free, clear, anti-acne treatment is made by combining the following ingredients utilizing conventional mixing techniques:

Table 8.

	Ingredient	% w/w
5	10 % wt. 1:1 responsive polymer network as prepared in Example 1	20.0
	Glycerin USP	5.0
	Salicylic Acid	2.0
	DL-Panthenol	0.5
10	Germaben® II ¹	0.1
	Disodium EDTA	0.2
	USP Purified Water	72.2

¹Germaben® II available from Sutton Laboratories

15 To one vessel, equipped with a Lightnin' Mixer with a 3 blade paddle prop, the full amount of USP Purified Water to 100% w/w is added. While maintaining the temperature, with moderate to vigorous mixing, the formula amount of Disodium EDTA, Citric Acid, DL-Panthenol, Glycerin, Salicylic Acid, and Germaben® II is added. These materials are allowed to dissolve at 50°C. After dissolution, the vessel
20 is then cooled to 20°C. To another vessel, equipped with a high efficiency homogenizer, the formula amount of responsive polymer network is added. The responsive polymer network vessel is then cooled to 4°C. After cooling, while vigorously homogenizing, the contents of the first vessel is added to the second vessel, and allowed to mix to homogeneity.

25 The composition displays a flowable clear jelly appearance with excellent spreadability and absorption characteristics at room temperature, and after heating the formulation to 32°C, the composition thickens to a gel-like consistency.

Example 33. (a) Oil-free Moisturizer (formulation I): An oil-free, lubricous moisturizer was made by combining the following ingredients utilizing conventional
30 mixing techniques:

Table 9.

Ingredient	% w/w
10 % wt. 1:1 responsive polymer network as prepared in Example 1	20.0
Glycerin USP	5.0
PPG-2 Myristyl Ether Propionate	3.0
DL-Panthenol	0.5
Germaben® II ¹	0.1
Disodium EDTA	0.2
Citric Acid	0.01
USP Purified Water	71.19

¹Germaben® II available from Sutton Laboratories

The above ingredients were added and processed as described above for the acne composition. The composition displayed a flowable creamy lotion appearance with excellent emolliency, spreadability and absorption characteristics at room temperature. After heating the formulation to above 26°C, the composition thickened to a gel-like consistency. The viscosity vs. temperature curve is shown in Figure 21 and demonstrates that addition of adjuvants to the composition significantly enhances the responsive polymer network maximum viscosity (> 900.000 cps). The use of the poloxamer:poly(acrylic acid) polymer network in the formulation also imparts a unique viscosification effect after application to the skin, which is not evident in typical commercial O/W emulsion formulations (See Figure 21b).

(b) Oil-free Moisturizer (formulation II): An oil-free, lubricous moisturizer was made by combining the following ingredients utilizing conventional mixing techniques:

Table 10.

Ingredient	% w/w
1:1 polymer network as prepared in Example 1	20.0
Glycerin USP	5.0
Carbopol 980	1.0

Ingredient	% w/w
D-Panthenol, propylene glycol	1.0
Preservative	1.0
Hydrolyzed protein (and) hyaluronic acid	0.5
Sodium hydroxide	0.2
USP Purified Water	90

5

The above ingredients were added and processed as described above for the acne composition. The composition displayed a flowable creamy lotion appearance with excellent emolliency, spreadability and absorption characteristics at room temperature. After heating the formulation to above 26°C, the composition thickened to a gel-like consistency. The addition of adjuvants to the composition significantly enhances the polymer network maximum viscosity.

15

Example 34. Sunscreen Lotion. An oil-free, lubricous sunscreen lotion was made by combining the following ingredients utilizing conventional mixing techniques:

Table 11.

20

Ingredient	% w/w
1:1 polymer network as prepared in Example 1	2.0
Glycerin USP	8.0
Carbopol 980	1.0
Parsol MCX	7.0
Myristyl Ether Propionate	5.0
Preservative	1.0
Cyclomethicone	1.0
Sodium hydroxide	0.2
USP Purified Water	74

25

30

The above ingredients were added and processed as described above for the acne composition. The composition displayed a flowable creamy lotion appearance

with excellent emolliency, spreadability and absorption characteristics at room temperature. After heating the formulation to above 26°C, the composition thickened to a gel-like consistency. The addition of adjuvants to the composition significantly enhances the polymer network maximum viscosity.

5 Example 35. Facial mask. A face mask was made by combining the following ingredients utilizing conventional mixing techniques:

Table 12.

	Ingredient	% w/w
10	1:1 polymer network as prepared in Example 1	1.0
	Polyvinyl alcohol	6.0
	Polyvinylpyrrolidone (20%)	5.0
	D-panthenol, propylene glycol	1.25
	Propylene glycol	1.25
15	USP Purified Water	85.5

The above ingredients were added and processed as described above for the acne composition. The composition displayed a flowable creamy lotion appearance
 20 with excellent emolliency, spreadability and absorption characteristics at room temperature. After heating the formulation to above 26°C, the composition thickened to a gel-like consistency. The addition of adjuvants to the composition significantly enhances the polymer network maximum viscosity.

25 Example 36. Facial toner. A face mask was made by combining the following ingredients utilizing conventional mixing techniques:

Table 13.

	Ingredient	% w/w
30	1:1 polymer network as prepared in Example 1	0.01
	Hydroxyethyl cetyltrimonium phosphate	1.00
	PEG-40 hydrogenated castor oil	2.00

Ingredient	% w/w
D-panthenol, propylene glycol	0.50
Glycerin	2.00
Witch hazel extract	5.00
USP Purified Water	88.49

5

The above ingredients were added and processed as described above for the acne composition. The composition displayed a flowable creamy lotion appearance with excellent emolliency, spreadability and absorption characteristics at room 10 temperature. After heating the formulation to above 26°C, the composition thickened to a gel-like consistency. The addition of adjuvants to the composition significantly enhances the polymer network maximum viscosity.

15 Example 36. Solubilization studies of model hydrophobic agents in the poloxamer:poly(acrylic acid) polymer network: estradiol and progesterone. This example is presented to demonstrate the solubilization of a hydrophobic agent in the polymeric network. Progesterone and estradiol were used as the hydrophobic agents in this model solubilization study.

20 Acrylic acid (99%), fluorescein (98%), β -estradiol (98%), and progesterone (98%) were all obtained from Aldrich and used as received. Pluronic® F127 NF was obtained from BASF. Poly(oxyethylene-b-oxypropylene-b-oxyethylene)-g-poly(acrylic acid) copolymers (responsive polymer network) were synthesized by free-radical 25 polymerization of acrylic acid in the presence of poloxamer as described above. The polymer network copolymers discussed here were composed of about 1:1 ratio of PAA to poloxamer. The rheological properties of polymer network were assessed using LVDV-II+ and RVDV-II+ Brookfield viscometers. The microscopic light scattering of 21 nm poly(styrene) latex particles in deionized water and 1 wt% reversibly gelling polymer network was measured using He-Ne laser as described previously (see Matsuo, E.S., Orkisz, M., Sun, S.-T., Li, Y., Tanaka, T., *Macromolecules*, 1994, 27, 6791). The solubility of fluorescein and hormones in aqueous solutions was measured 30 by the equilibrium of excess solubilizate with the corresponding solution following

removal of undissolved species by centrifugation and filtration. Hydrophobic agents were assayed spectrophotometrically at 240 (progesterone) or 280 nm (estradiol), or by using 70/30 w/w H₂SO₄/MeOH (Tsilifonis-Chafetz reagent). In vitro hormone release studies were conducted using thermostated, vertical Franz cells. Spunbonded 5 polypropylene microfilters (micron retention, 15-20) were used as a membrane separating feed and receiver phases in Franz cells. The responsive polymer network, water, ethanol, and 20% PEG in water were observed to wet the membrane. The receiver solution consisted of 20 w% PEG in water (pH 7) and were stirred by magnetic bars. The feed phases composed of responsive polymer network were loaded 10 with either estradiol or progesterone. Each hormone was dissolved in ethanol and the resulting solution was added into the responsive polymer network.

Equilibrium solubility vs. temperature plots for estradiol and progesterone (partition coefficient octanol/water (P) 7200 and 5888, respectively), in aqueous solutions of Pluronic® F127 polyol and responsive polymer network are presented in 15 Figure 22. It can be seen that increasing temperature and concentration (C) of polymers in the solution raises the amount of the hormone dissolved. In Figure 22a, vertical lines represent critical micellar temperatures (CMT) for corresponding Pluronic® F127 polyol solutions. It is interesting to note that the slope of the 20 solubility-temperature plots increased as temperature reached CMT, indicating that solubilization in the Pluronic® solutions was predominantly due to the formation of micelles. Similar trend was observed in the responsive polymer network solutions. The S values in 5% aqueous solutions of branched PAA did not exceed 15 and 40 $\mu\text{g/mL}$ at 60°C for estradiol and progesterone, respectively. The solubility values 25 found for responsive polymer network were the same as S in parent Pluronic® solutions of equivalent concentrations. Therefore, it may be suggested that solubilization behaviors of the responsive polymer network are governed by the properties of the poloxamer incorporated into it. Thermodynamic parameters of the solubilization process with responsive polymer network were calculated using the same approximations as in the micellar solubilization with Pluronic® polyols. See, Saito, Y., 30 Kondo, Y., Abe, M., Sato, T., Chem. Pharm. Bull., 1994, 42, 1348. Namely,

partition coefficient P was estimated from equilibrium solubilities of estradiol in responsive polymer network and water:

$$P = S_{SH}/S_w \quad (13)$$

by extrapolating the solubility plots of the steroid in Figure 22 to 100% responsive

5 polymer network. Using P values obtained from data in Figure 23, we calculated the standard free energy change (ΔG), standard enthalpy of solubilization (ΔH), and standard entropy of solubilization (ΔS) using the following expressions:

$$\Delta G = -RT\ln P; \Delta H = -R \Delta \ln P / \Delta(1/T); \Delta S = (\Delta H - \Delta G) / T \quad (14)$$

Thermodynamic parameters obtained along with P values are given in Table 14.

10 Apparent partition coefficients and thermodynamic parameters for solubilization of estradiol by responsive polymer network.

Table 14.

T, K	P = S _{SH} /S _w	ΔG kJ/mol	ΔH kJ/mol	ΔS J/mol	
15	277	490	-14.3	4.72	68.6
	293	520	-15.2		52.0
	310	660	-16.7		53.9
	323	660	-17.4		54.0
	333	660	-18.0		54.0

20 Negative ΔG values indicate spontaneous solubilization at all temperatures, whereas positive ΔH shows that the solubilization was endothermic, similar to the solubilization of estriol, as well as indomethacin, by the poloxamer. Notably, ΔS of solubilization was always positive, suggesting that the more ordered water molecules 25 surrounding hydrophobic estradiol molecules moved to the less ordered bulk phase when the estradiol was transferred to the hydrophobic core of PPG segments in responsive polymer network. The aggregation of the PPG segments at elevated temperatures provides not only temporary cross-linking in the gel, but also a thermodynamically "friendly" environment for the hydrophobic drugs. Indeed, one can 30 express the free energy of formation of the aggregate core-water interface in responsive

polymer network as:

$$\Delta G = [\sigma P_w(1-\phi) + \sigma W_D \phi](4\pi R^3/n) \quad (15)$$

where σP_w and σW_D are the interfacial tensions between pure PPO polymer and water and between water and the drug, respectively; ϕ is the volume fraction of the drug within the PPO core; R is the effective radius of the core; and n is the aggregation number.

Equation (3) shows that solubilization of a hydrophobic drug of high σW_D should increase the stability of the aggregate. The solubilization process was found to decrease the critical micellization concentration and substantially increase the micellar core radius in Pluronic surfactants (Hurter, P.N., et al., "In Solubilization in Surfactant Aggregates", Christian, S.D., Ed., Marcel Dekker, New York, 1995). A similar trend is indicated by the lowering the onset of gelation of the responsive polymer network upon solubilization of fluorescein (LogP 2.1) (Figure 24). The solubilization of hydrophobic drugs by responsive polymer network, analogous to the micellar solubilization of drugs by poloxamer, suggests that the responsive polymer network can be an effective vehicle in drug delivery.

Our *in vitro* study of hormone release from responsive polymer network shows an increase in the initial transport rate with either decreasing total polymer concentration in the formulation or decreasing temperature (Figure 25). These effects are related to the changes in macroscopic viscosity of the responsive polymer network, which erodes more rapidly from the feed phase through the membrane into the receiver compartment as the viscosity decreases (Figure 26). The degree of the responsive polymer network erosion was measured by weighing hormone-loaded responsive polymer network before and after kinetic experiment.

Figure 27 shows that the relative amount of progesterone penetrating into the receiver phase decreased 4-fold with the increase of total polymer concentration, whereas the total relative amount of progesterone stayed almost constant as total polymer concentration in the responsive polymer network increased. This result shows the existence of two routes of transport of hydrophobic drugs in our model system.

Firstly, the drug incorporated into aggregates within the responsive polymer network

system can flow through the membrane along with the erosion of the responsive polymer network; secondly, the drug not associated with the responsive polymer network aggregates can diffuse out of the responsive polymer network in the feed phase. The second process should not be related to the viscosity of the responsive polymer network. Indeed, the dynamic light scattering experiment shows no dramatic change of diffusivity of poly(styrene) latex particles in the responsive polymer network as temperature rises thereby increasing macroscopic viscosity more than 10-fold (Figure 28). This result indicates that the viscosity of the responsive polymer network is essentially unaffected on the microscopic scale.

10

Appendix A attached.

APPENDIX A

FUNCTION DEFINITIONS

5	Abrasive: abrades, smoothes, polishes	Buffer: helps maintain original pH (acidity or basicity) of a preparation
	Absorbent powder: takes up liquids, sponge-like action	Carrier: a vehicle or base used for a preparation
	Absorption base: forms water-in-oil emulsions	Chelate: form a complex with trace-metal impurities, usually calcium or iron
	Acidulent: acidifies, lowers pH, neutralizes alkalis	Colorant: adds color, may be a soluble dy or an insoluble pigment
10	Amphoteric: capable of reacting chemically either as an acid or a base; amphoteric surfactants are compatible with anionic and cationic surfactants	Conditioner: improves condition of skin and hair
	Analgesic: relieves pain	Coupling agent: aids in solubilization or emulsification of incompatible components
	Antacid: neutralizes stomach acidity	Decolorant: removes color by adsorption, bleaching or oxidation
15	Antibacterial: destroys/inhibits the growth/reproduction of bacteria	Denaturant: used to denature ethyl alcohol
	Anti-caking: prevents or retards caking of powders; keeps powders free-flowing	Dental powder: powdered dentifrice
	Anti-dandruff: retards or eliminates dandruff	Deodorant: destroys, masks, or inhibits formation of unpleasant odors
20	Antifoam: suppresses foam during mixing	Depilatory: removes hair chemically
	Anti-inflammatory: reduces, suppresses, counteracts inflammation	Detergent: a surface-active agent (surfactant) that cleans by emulsifying oils and suspends particulate soil
	Anti-irritant: reduces, suppresses or prevents irritation	Disinfectant: destroys pathogenic microorganisms
25	Antimicrobial: destroys, inhibits or suppresses the growth of microorganisms	Dispersant: promotes the formation and stabilization of a dispersion or suspension
	Antioxidant: inhibits oxidation and rancidity	Dye stabilizer: see Stabilizer
	Antiperspirant: reduces or inhibits perspiration	Emollient: softens, smoothes skin
	Antipruritic: reduces or prevents itching	Emulsifier: a surface-active agent (surfactant) that promotes the formation of water-in-oil or oil-in-water emulsions
30	Antiseptic: inhibits the growth of microorganisms on the skin or on living tissue	Enzymes: complex proteins produced by living cells that catalyze biochemical reactions at body temperature.
	Antistat: reduces static by neutralizing electrical charge on a surface	Fiber: strands of natural or synthetic polymers; for instance, cotton, wool, silk, nylon, polyester
35	Astringent: contracts organic tissue after application	Film former: solution of a polymer that forms films when the solvent evaporates after application to a surface
	Binder: promotes cohesion of powders	Fixative: fixes or sets perfumes; retards evaporation; promotes longer lasting aroma
	Bleaching agent: lightens color, oxidizing agent	
	Botanical: natural plant derivative	

	Flavor: imparts a characteristic taste (and aroma) to edible foods and drinks; sometimes used in lip products	Ointment base: an anhydrous mixture of oleaginous components used as a vehicle for medicaments
5	Foam booster: enhances quality and quantity of lather of shampoos	Opacifier: opacifies clear liquids or solids
	Foamer: a surface-active agent (surfactant) that produces foam; an emulsion of air-in-water	Oxidant: oxidizing agent, neutralizes reducing agents, bleaching agent
	Foam stabilizer: see Foam booster	Pearlant: imparts a pearlescent texture and luster
10	Fungicide: inhibits or destroys growth of fungi	Perfume solvent: see Solvent and Solubilizer
	Gellant: a gelling agent; forms gels; includes a wide variety of materials such as polymers, clays and soaps	Peroxide stabilizer: see Stabilizer
	Glosser: furnishes a surface luster or brightness; usually used in lip or hair products	Pigment: a finely powdered insoluble substance used to impart color, luster, or opacity
15	Hair colorant: see Colorant	Plasticizer: plasticizes (makes more flexible) polymeric films or fibers
	Hair conditioner: see Conditioner	Polish: smoothes; adds gloss and luster
	Hair dye: imparts a new permanent or semi-permanent color to hair	Polymer: a very high molecular weight compound consisting of repeating structural units
20	Hair-set polymer: polymer and/or resins used to maintain desired hair shape	Powder: a solid in the form of fine particles
	Hair-set resin: see Hair-set polymer	Preservative: protects products from spoilage by microorganisms
	Hair waving: see Reducing agent and Neutralizer	Propellant: pressurized gas in a container used to expel the contents when pressure is released by opening a valve
	Humectant: absorbs, holds, and retains moisture	Protein: naturally occurring complex combinations of amino acids
	Hydrotrope: enhances water solubility	Reducing agent: reduces a chemical compound usually by donating electrons; neutralizes oxidizing agents
25	Intermediate: basic chemicals which are chemically modified to obtain the desired function	Refatting agent: adds oils materials to the surface of substrates, e.g., skin and hair
	Lathering agent: a surface active agent (surfactant) that forms a foam or lather on mixing with air in solution; see also Foamer	Resin: nonvolatile solid or semisolid organic substances obtained from plants as exudates or prepared by polymerization of simple molecules
30	Lubricant: reduces friction, smoothes, adds slip	Sequestrant: forms coordination complexes with multivalent positive ions
	Moisture barrier: retards passage of moisture or water	Silicone: polymeric organic silicon compounds which are water-resistant
	Moisturizer: aids in increasing the moisture content of the skin through humectant or barrier action	Skin protectant: protects the skin from environmental
35	Neutralizer: an oxidizing agent used in hair waving that stops the action of the reducing agent and re-establishes the disulfide linkages in hair	Solubilizer: solubilizes, usually into aqueous vehicles, normally insoluble materials, such as fragrances, flavors, oils, etc.
40	Oil absorbent: see Absorbent powder	

Solvent: usually liquids capable of dissolving other substances

Stabilizer: added to stabilize emulsions and/or suspensions

5 **Stimulant:** produces a temporary increase in the functional activity of an organism or any of its parts

10 **Surfactant** (surface active agent): lowers surface tension between two or more incompatible phases; soaps, detergents, wetting agents, solubilizing agents and emulsifying agents are typical surfactants; surfactants are classified as anionic, cationic, nonionic and amphoteric; anionic surfactants are negatively charged, cationic surfactants have no electrical charge

15 **Suspending agent:** keeps finely divided solid particles in suspension

20 **Sweetener:** sweetens to provide a more pleasant taste

25 **Tanning accelerator:** accelerates the tanning of skin

30 **Thickener:** thickens or increases viscosity/consistency

35 **Thixotrope:** the property of certain gels and emulsions of becoming more fluid or less viscous when shaken or stirred

UV absorber: used as a sunscreen and to protect preparations from degradation by UV radiation

30 **UVA absorber:** absorbs in the range 320-400 nanometers (nm)

40 **UVB absorber:** absorbs in the range 290-320 nanometers (nm)

45 **Wax:** any of numerous substances of plant, animal or synthetic origin that contain principally esters of higher fatty acids and higher fatty alcohols; free fatty alcohols, fatty acids and hydrocarbons may also be present; waxes derived from petroleum products are mainly high-molecular-weight hydrocarbons

45 **Wetting agent:** a surface-active agent (surfactant) that lowers the surface and interfacial tension, facilitating the wetting of surfaces

FUNCTIONS

	Abrasive	
5	Adzuki beans	
	Almond (<i>Prunus amygdalus</i>) meal, shell granules	
	Aluminum silicate	
	Apricot (<i>Prunus armeniaca</i>) kernel powder, shells	
	Hydrated silica	
10	Jojoba (<i>Buxus chinensis</i>) seed powder	
	Luffa <i>cylindrica</i>	
	Olive stone granules	
	Oyster shell powder	
	Peach (<i>Prunus persica</i>) pit powder	
	Peach (<i>Prunus persica</i>) stone granules	
15	Polyethylene	
	Polyethylene HEC granules	
	Polyethylene oxidized, P. spheres	
	Polystyrene	
	Pumice	
20	Rice (<i>Oryza sativa</i>) bran	
	Silica and S. colloidal	
	Sodium chloride	
	Walnut (<i>Juglans regia</i>) shell powder	
25	Absorption base	
	1,2,6-Hexanetriol	
	Kaolin	
	Petrolatum	
	Rice (<i>Oryza sativa</i>) starch	
30	Soy (<i>Glycine soja</i>) sterol	
	Zeolite	
	Absorbent powder	
35	Corn (<i>Zea mays</i>) starch	
	Maltodextrin	
	Nylon-12	
	Oat (<i>Avena sativa</i>) bran, flour, meal	
	Zeolite	
40	Acidulent	
	Acetic acid	
	Citric acid	
	Fumaric acid	
	Glutamic acid	
45	Glycolic acid	
	Hydrochloric acid	
	Lactic acid	
	Nitric acid	
	Phosphoric acid	
	Sodium bisulfate	
	Sulfuric acid	
50	Tartaric acid	
	AHA	
	Apple (<i>Pyrus malus</i>) extract	
	Apricot (<i>Prunus armeniaca</i>) kernel powder	
	Citric acid	
	Ethyl lactate	
	Glycolic acid	
	Lactic acid	
	Malic acid	
	Sodium lactate	
	Tartaric acid	
	Antiacne	
	Clays (white, yellow, red, green, pink)	
	Perfluorodecalin	
	Salicylic acid	
	Sulfur	
	Anti-aging	
	Basil (<i>Ocimum basilicum</i>) extract	
	Carrot (<i>Daucus carota</i>) extract	
	Catalpa <i>kaempfera</i> extract	
	Ceramide 33 (liquid soy extract)	
	Crataegus <i>cuneata</i> extract	
	Eugenia <i>jamabolana</i> extract	
	Fomes <i>fomentarius</i> extract	
	Fomitopsis <i>pinicola</i> extract	
	Ganoderma <i>lucidum</i> oil	
	Ginseng (<i>Panax ginseng</i>) extract	
	Hyaluronic acid	
	Hydrolyzed serum protein	
	Hydrolyzed soy flour	
	Isachne <i>puichella</i> extract	
	Lactoferrin	
	Lady's Thistle (<i>Silybum marianum</i>) extract	
	Ligusticum <i>jeholense</i> extract	
	Marine collagen	
	Mushroom (<i>Coriolus versicolor</i>) extract	
	Must rose (<i>Rosa moschata</i>) oil	
	Perfluorodecalin	
	Quaternium-51	
	Rubus <i>thunbergii</i> extract	
	Serum protein	
	Stenocalyx <i>micalii</i> extract	
	Tricholoma <i>matsutake</i> extract	
	Antibacterial	
	Ammonium iodide	
	Chlorhexidine	
	Chlorhexidine diacetate, C. digluconate	
	Chlorhexidine dihydrochloride	

	Chlorphenesin	<u>Antidandruff</u>
	Hexamidine diisethionate	Burdock (<i>Arctium lappa</i>) extract
	Hexetidine	Chloroxyleneol
5	Iceland moss (<i>Cetraria islandica</i>) extract	Corydalis <i>ambigua</i> extract
	Lactoterrin	Disodium undecylenamido MEA-sulfosuccinate
	Lauralkonium bromide, L. chloride	Ginger root extract
	Laurtrimonium chloride	Inga <i>edulis</i> extract
	Laurylpypnidinium chloride	Mauritiella <i>armata</i> extract
10	Mauritiella <i>armata</i> extract	Myristalkonium saccharinate
	Mushroom (<i>Cordyceps sbolifera</i>) extract	
	Orange blossom extract	PEG-6 undecylenate
	Orange (<i>Citrus aurantium dulcis</i>) peel extract	Piroctone olamine
	PEG-42 Ebiriko ceramides extract	Resorcinol
15	Peppermint (<i>Mentha piperita</i>) extract	Rosemary (<i>Rosmarinus officinalis</i>) extract
	Philodendron (<i>Phellodendron amurense</i>) extract	Sodium shale oil sulfonate
	Pine (<i>Pinus sylvestris</i>) needle extract	Stenocalyx <i>micalii</i> extract
	Polymethoxy bicyclic oxazolidine	Undecylenamide DEA
	Quaternium 73	Willow (<i>Salix alba</i>) bark extract
20	Rubus <i>thunbergii</i> extract	Zinc pyrithione
	Tea tree (<i>Melaleuca alternifolia</i>) oil	
	Triclocarban	
	Undecylenic acid	
	<u>Anticaking</u>	<u>Antifungal</u>
25	Aluminum starch octenylsuccinate	Black walnut (<i>Juglans nigra</i>) extract
	Calcium stearate	Coneflower (<i>Echinacea angustifolia</i>) extract
	Distarch phosphate	Orange blossom extract
	Hydrated silica	<i>Pfaffia paniculata</i> extract
	Kaolin	
30	Magnesium myristate, M. silicate	<u>Anti-inflammatory</u>
	Polyethylene, micronized	Allantoin polygalacturonic acid
	Silica silylate	Bisabolol
	Sodium aluminum silicate	Black poplar (<i>Populus nigra</i>) extract
	Zinc stearate	Brassica <i>rapa-depressa</i> extract
35		Butcherbroom (<i>Ruscus aculeatus</i>) extract
	<u>Anticaries agent</u>	Calendula <i>officinalis</i> extract
	Cetylamine hydrofluoride	Catalpa <i>kaempfera</i> extract
	Olaflur	Celastrus <i>paniculata</i> extract
40	Sodium fluoride	Ceramide 33 (liquid soy extract)
	Stearyl trihydroxyethyl propylenediamine dihydrofluoride	Chaparral (<i>Larrea mexicana</i>) extract
		Coneflower (<i>Echinacea angustifolia</i>) extract
		Cornflower (<i>Centaurea cyanus</i>) extract
		Dipotassium glycyrrhizinate
		Euphorotium <i>fortunei</i> extract
		Duphrasia <i>officinalis</i> extract
		Ficus <i>racemosa</i> extract
		Golden seal (<i>Hydrastis canadensis</i>) root extract
		Guaiaculene
		Horse chestnut (<i>Aesculua hippocastanum</i>) extract
		Jujube (<i>Zizyphus jujuba</i>) extract
45	Bladderwrack (<i>Fucus vesiculosus</i>) extract	Laminaria <i>japonica</i> extract
	Butcherbroom (<i>Ruscus aculeatus</i>) extract	Licorice (<i>glycyrrhiza glabra</i>) extract
	Carcinia <i>cambogia</i> extract	Ligusticum <i>jehoense</i> , L. <i>lucidum</i> extract
	Fomes fomentarius extract	Matricaria (<i>Chamomilla recutita</i>) extract
	Fomitopsis pinicola extract	Melaleuca <i>uncinata</i> extract
50	Ivy extract	Melia <i>azadirachta</i> extract
	Mushroom (<i>Coriolus versicolor</i>) extract	
	TEA-hydroiodide	
	Tricholoma matsutake extract	

	Mulberry (<i>Morus nigra</i>) extract	PVP
	Niacinamide ascorbate	Saccharomyces lysate extract
	Orange (<i>Citrus aurantium dulcis</i>) peel extract	Sodium C12-15 pareth-15 sulfonate
	Orange blossom extract	Sodium lauroamphoacetate
5	Palmetto extract	Soy (<i>Glycine soja</i>) protein
	Palmitoyl collagen amino acids	Undecylenoyl collagen amino acids
	Passion flower (<i>Passiflora laurifolia</i>) fruit extract	Valerian (<i>Valeriana officinalis</i>) extract
	Paulownia <i>imperialis</i> extract	
	Alicyclic acid	
10	Shea butter (<i>Butyrospermum parkii</i>)	Antimicrobial
	Sodium carboxymethyl beta-glucan	Benzalkonium chloride
	soy (<i>Glycine soja</i>) protein	Benzoic acid
	Stearyl glycyrrhettinate	Benzyl alcohol
	Stenocalyx <i>micalii</i> extract	Bromochlorophene
15	Tocopheryl acetate, T. <i>nicotinate</i>	2-Bromo-2-nitropropane-1,3-diol
	Trichomonas <i>japonica</i> extract	Butylparaben
	Willow (<i>Salix alba</i>) extract	Capryloyl collagen amino acids
	Witch hazel (<i>Harmamelis virginiana</i>) extract	Capryloyl glycine, C. keratin amino acids
	Withania <i>somnifera</i> extract	Captan
20	Yarrow (<i>Achillea millefolium</i>) extract	Cetethyldimonium bromide
	Zinc lactate	Cetyl pyridinium chloride
		Chlorothymol
		Chloroxylenol
		Citron oil
	Anti-irritant	Copper PCA
	Acetyl monoethanolamine	Dichlorobenzyl alcohol
25	Allantoin	Dilauryldimonium chloride
	Allantoin acetyl methionine, A. <i>glycyrrhetic</i> acid	Domiphen bromide
	Azelamide MEA	Ethylparaben
	Betaine	Eucalyptus (<i>Eucalyptus globulus</i>) extract
30	Calendula <i>officinalis</i> extract	Fennel (<i>Foeniculum vulgare</i>) extract
	Cocamidopropyl betaine	Garlic (<i>Allium sativum</i>) extract
	Coceth-7 carboxylic acid	Glyceryl caprylate, G. laurate
	Cornflower (<i>Centaurea cyanus</i>) extract	Hexamidine diisethionate
	Diisostearyl dimer dilinoleate	Hinokitiol
35	Dipalmitoyl cystine	Honeysuckle (<i>Lonicera caprifolium</i>) extract
	Green tea extract	Lichen (<i>Usnea barbata</i>) extract
	Hydrolyzed sweet almond protein	Myristalkonium chloride
	Hydroxypropyltrimonium gleatin	Pentylene glycol
	Lauroyl collagen amino acids	Phenethyl alcohol
40	1-Lysine lauroyl methionine	Phenol
	Mallow extract	Phenoxyethanol
	Matricaria (<i>Chamomilla recutita</i>) extract	Phenoxyisopropanol
	Palmitoyl hydrolyzed milk protein	Phenyl mercuric acetate, P.m. benzoate, P.m. borate
	Palmitoyl hydrolyzed wheat protein	o-Phenylphenol
45	Palmitoyl keratin amino acids	Polymethoxy bicyclic oxazolidine
	PEG-12 palm kernel glycerides	Potassium sorbat
	PEG-28 glyceryl tailowate	Propylparaben
	PEG-30 glyceryl monococoate	Ricinoleamodopropyltrimonium ethosulfate
	PEG-60 almond glycerides	Sage (<i>Salvia officinalis</i>) extract
50	PEG-78 glyceryl cocoate	Sodium benzoate, S. pyrithione
	PEG-82 glyceryl tailowate	Sodium ricinoleate, S. shale oil sulfonate
	PEG-200 glyceryl tailowate	Thimerosal
	Propionyl collagen amino acids	

	Thyme (<i>Thymus vulgaris</i>) extract	Tocopheryl acetate, T. linoleate
	Thymol	Wild marjoram (<i>Origanum vulgare</i>) extract
	Triclocarban	Yeast (<i>Saccharomyces cerevisiae</i>) extract (Faex)
	Triclosan	
5	Undecylenamidopropyltrimonium methosulfate	Antiperspirant
	Undecylenic acid	Allantoin-aluminum chlorhydrate
	Zinc oxide, Z. PCA	Aluminum capryloyl hydrolyzed collage
	Zinc pyrithione, Z. undecylenate	Aluminum chlorhydrrex-gly, A. chloride
		Aluminum chlorhydrrex, A. chlorhydrrex
10	Antioxidant	Aluminum PCA, A. sesquichlorhydrate
	Ascorbic acid	Aluminum undecylenoyl collagen amino acids
	A. polypeptide	Aluminum zirconium pentachlorhydrate
	Ascorbyl oleate, A. palmitate	Aluminum zirconium tetrachlorhydrate
	Beta-carotene	Aluminum zirconium tetrachlorhydrrex GLY
15	BHA	Aluminum zirconium trichlorhydrate
	BHT	Aluminum-zirconium-glycine powder
	t-Butyl hydroquinone	Sage (<i>Salvia officinalis</i>) extract
	Dilauryl thiodipropionate	T tormentil (<i>Potentilla erecta</i>) extract
	Dimyristyl thiodipropionate	Zirconium chlorhydrate
20	Disodium EDTA	Antiseptic
	Distearyl thiodipropionate	Aluminum PCA
	Dodecyl gallate	Azadirachta indica extract
	EDTA	2-Bromo-2-nitropropane-1,3-diol
	Erythorbic acid	Calendula amurrensis extract
25	Ferulic acid	p-Chloro-m-cresol
	Grape (<i>Vitis vinifera</i>) seed extract	Clove (<i>Eugenia caryophyllus</i>) oil
	Green tea extract	Crataegus cuneata extract
	HEDTA	Dichlorobenzyl alcohol
	Hydroquinone	Entada phaseoloides extract
30	Hydroquinone-beta-D-glucopyranoside	Eucalyptus (<i>Eucalyptus globulus</i>) extract
	p-Hydroxyanisole	Golden seal (<i>Hydrastis canadensis</i>) root extract
	Lactoferrin	Hexachlorophene
	Lysine PCA	Melia australasica, M. azadirachta extract
	Melanin	Methyl salicylate
35	Methyl gallate	Orange (<i>Citrus aurantium dulcis</i>) peel extract
	Niacinamide ascorbate	Oxyquinoline sulfate
	Nordihydroguaiaretic acid	Pfaffia paniculata extract
	Oat (<i>Avena sativa</i>) extract	Potassium abietoyl hydrolyzed collagen
	Oryzanol	PVP-iodine
40	Pentasodium pentetate	Silver nitrate
	Pentetic acid	Sodium salicylate
	Propyl gallate	Sterculia platanifolia extract
	Retinyl palmitate polypeptide	Tea tree (<i>Melaleuca alternifolia</i>) oil
	Rosemary (<i>Rosmarinus officinalis</i>) extract	T tormentil (<i>Potentilla erecta</i>) extract
45	Saccharomyces lysate extract	Xanthozylum bungeanum extract
	Sage (<i>Salvia officinalis</i>) extract	Antistat
	Sodium ascorbate, S. erythorbate	Acetamide MEA
	Sodium metabisulfite	Acetamidopropyl trimonium chloride
	Sodium selenate, S. sulfite	6-(N-Acetyl amino)-4-oxyhexyltrimonium chloride
50	Superoxide dismutase,	Alkyl dimethyl betaine
	Tea (<i>Camellia sinensis</i>) extract	
	Tetrasodium EDTA	
	Tocopherol	

	Babassuamidopropalkonium chloride	Soyethyldimonium ethosulfate
	Behenamidopropyl ethyldimonium ethosulfate	Stearalkonium chloride
	Behenamidopropyl hydroxyethyl dimonium chloride	Stearamidopropyl benzyl dimonium chloride
5	Carboxymethyl chitin	Stearamidopropyl ethyldimonium ethosulfate
	Cetethyl morpholinium ethosulfate	Steartrimonium chloride
	Cetrimonium chloride	N-Stearyl-(3-amidopropyl)-N,N-dimethyl-N-ethyl ammonium ethyl sulfate
	Chitin	Wheat germamidopropylethyldimonium ethosulfate
	Chitosan	
10	Cocamidopropyl ethyldimonium ethosulfate	Astringent
	Cocodimonium hydroxypropyl hydrolyzed rice protein	Aluminum citrate, A. lactate
	Cocodimonium hydroxypropyl hydrolyzed soy protein	Astragalus sinicus extract
15	Dimethicone hydroxypropyl trimonium chloride	Astrocaryum murumuru, A. tucuma extract
	dimethyl behenamine, D. cocamine	Azadirachta indica extract
	Dimethyl palmitamine, D. soyamine	Azelamide MEA
	Dimethyl tailowamine	Bearberry (Arctostaphylos uva-ursi) extract
20	Dioleylamidoethyl hydroxyethylmonium methosulfate	Birch (Betula alba) leaf extract
	Dipalmitoylethyl hydroxyethylmonium methosulfate	Catalpa kaempfera extract
	N-Dodecyl-N,N-dimethyl-N-(dodecyl acetate) ammonium chloride	Celastrus paniculata extract
25	Erucamidopropyl hydroxysultaine	Coccinea indica extract
	Glyceryl monopyroglutamate	Coffee (Coffea arabica) bean extract
	Hydrogenated tailowamine oxide	Euphrasia officinalis extract
	Isosteara propyl dimethylamine	Euterpe precatoria extract
30	Lactamidopropyl trimonium chloride	Evening primrose (Oenothera biennis) extract
	Lauryldimonium hydroxypropyl hydrolyzed collagen	Gentian (Gentiana lutea) extract
	Linoleamidopropyl dimethylamine dimer dilinoleate	Geranium maculatum extract
	Olealkonium chloride	Grape (Vitis vinifera) leaf extract
35	PEG-2 cocamine	Henna (Lawsonia inermis) extract
	PEG-2 cocomonium chloride	Hierochloe odorata extract
	PEG-2 oleammonium chloride	Honeysuckle (Lonicera caprifolium) extract
	PEG-8 caprylic/capric glycerides	Hops (Humulus lupulus) extract
	PEG-10 cocamine	Horesetail extract
40	PEG-15 soyamine	Hypericum perforatum extract
	PPG-9 diethylmonium chloride	Ivy extract
	PPG-25 diethylmonium chloride	Juniperus communis extract
	PPG-40 diethylmonium chloride	Kadsura heteriiloca extract
	Propylene glycol stearate	Kola (Cola acuminata) extract
45	Quaternium-26, -27, -53, -62, -72	Lady's mantle (Alchemilla vulgaris) extract
	Rapeseedamidopropyl benzylidomonium chloride	Lemon (Citrus medica limonum) extract, peel extract
	Rapeseedamidopropyl epoxypropyl dimonium chloride	Lemon bioflauonoids extract
	Silica, colloidal	Lysimachia foenum-graecum extract
50	Sorbitan caprylate	Magnolia spp. extract
	N-Soya-(3-amidopropyl)-N,N-dimethyl-N-ethyl ammonium ethyl sulfate	Mauritia flexosa extract
	Soyethyl morpholinium ethosulfate	Maximilliana regia extract
		Melaleuca uncinata, M. wilsonii extract
		Melia australasica extract
		Nettle (Urtica dioica) extract
		Oak (Quercus) bark extract
		Ocimum basilicum, O. sanctum extract
		Palmetto extract
		Passion flower (Passiflora laurifolia) fruit extract

	Plantain (<i>Plantago major</i>) extract	<u>Biol. polymer</u>
	Polygonum multiflorum extract	Distarch phosphate
	Pterocarpus marsupianus extract	Dog rose (<i>Rosa canina</i>) see extract
	Raspberry (<i>Rubus</i>) extract	Hydrogen peroxide
5	Sambucus nigra oil	Kojic acid
	Sanguisorbae root extract	Mulberry (<i>Morus nigra</i>) extract
	Selinum spp. extract	Sanguisorbae root extract
	Shorea robusta extract	
	Tannic acid	
10	Walnut (<i>Juglans regia</i>) leaf extract, oil	
	Wheat (<i>Triticum vulgare</i>) protein	<u>Botanical</u>
	White nettle (<i>Lamium album</i>) extract	Acacia
	Witch hazel (<i>Hamamelis virginiana</i>) extract	Acacia farnesiana extract
	Xanthozylum bungeanum extract	Agrimony (<i>Agrimonia eupatoria</i>) extract
15	Zinc lactate	Alder (<i>Alnus firma</i>) extract
	Ziziphus jujuba extract	Alfalfa (<i>Medicago sativa</i>) extract
		Algae (<i>Ascophyllum nodosum</i>) extract
		Algae (<i>Lithotamnium calcareum</i>) extract
		Aloe barbadensis, A. b. extract
		Aloe capensis extract
20	Aluminum starch octenylsuccinate	Alpine Veronica extract
	Boron nitride	Althea officinalis extract
	C20-40, C30-50, C40-60 alcohols	Angelica archangelica extract
	Calcium stearate	Anise (<i>Pimpinella anisum</i>) extract
	Cellulose gum	Apple (<i>Pyrus malus</i>) extract
25	Dihydroabietyl behenate	Apricot (<i>Prunus armeniaca</i>) extract
	Diisostearyl malate	Arnica montana extract
	diocetyl sebacate	Artemesia capillaris extract
	Distarch phosphate	Artichoke (<i>Cynara scolymus</i>) extract
	ethylcellulose	Asafetida (<i>Ferula assa foetida</i>) extract
	Gellan gum	Asiasarum _____ extract
30	Hydrogenated jojoba oil	Asparagus officinalis extract
	Isocetyl alcohol, I. palmitate	Astragalus sinicus extract
	Isopropyl isostearate	Avens (<i>Geum rivale</i>) extract
	Isostearyl erucate, I. isostearate	Avocado (<i>persea gratissima</i>) extract
	Isostearyl neopentanoate	Balm mint (<i>Melissa officinalis</i>) extract, oil extract
35	Maltodextrin	Vanana (<i>Musa sapientum</i>) extract
	Methylcellulose	Barley (<i>Hordeum vulgare</i>) extract
	Microcrystalline cellulose	Basil (<i>Ocimum basilicum</i>) extract
	Octyl palmitate	Bearberry (<i>Arctostaphylos uva-ursi</i>) extract
	Octyldodecyl myristate	Bee pollen extract
40	bis-Octyldodecyl stearoyl dimer dilinoleate	Beet (<i>Beta vulgaris</i>) extract
	Octyldodecyl stearoyl stearate	Betaglucan
	Oleyl oleate	Bilberry (<i>Vaccinium myrtillus</i>) extract
	PEG-20, -75, -150, -240, -350	Bioflavonoids
	Polydipentene	Birch (<i>Betula alba</i>) bark extract, leaf extract
45	Polyethylene; P. micronized	Birch (<i>Betula platyphylla japonica</i>) extract
	PTFE	Bitter orange (<i>Citrus aurantium amara</i>) extract, flower extract, peel extract
	PVP	Black cohosh (<i>Cimicifuga racemosa</i>) extract
	Sorbitol	Black currant (<i>Ribes nigrum</i>) extract
	Synthetic wax	Black henna extract
50	Tapioca dextrin	Black poplar (<i>Populus nigra</i>) extract
	Tridecyl benenate, T. neopentanoate	Black walnut (<i>Juglans nigra</i>) extract
	Tridecyl stearoyl stearate	Bladderwrack (<i>Fucus vesiculosus</i>) extract
	Trisodium HEDTA	

	Houttuynia cordata extract	Neroli extract
	Hyacinth (Hyacinthus orientalis) extract	nettle (Urtica dioica) extract
	Hydrocotyl (Centella asiatica) extract	Oak (Quercus) bark extract
	Hydrolyzed oat protein, soy flour	Oak root extract
5	Hypericum perforatum extract	Oat (Avena sativa) bran, bran extract, flour, protein
	Hysop (Hyssopus officinalis) extract	Oat flower
	Indian cress (Tropaeolum majus) extract	Olive (Olea europa) extract, leaf extract
	Isodonis Japonicus extract	Onion (Allium cepa) extract
	Ivy extract	Orange blossom extract
10	Japanese angelica (Angelica acutiloba) extract, water	Orange (Citrus aurantium dulcis) flower extract, peel extract
	Japanese hawthorn (Crataegus cuneata) extract	Pansy (Viola tricolor) extract
	Jasmine (Jasminum officinale) extract	Papaya (Carica papaya) extract
	Job's tears (Coix lacryma-jobi) extract	Parsley (Carum petroselinum) extract
15	Jojoba (Buxus chinensis) seed powder	Passion flower (Passiflora laurifolia) fruit extract
	Juniperus communis extract	Passionflower (Passiflora incarnata) extract
	Kelp (Macrocystis pyrifera) extract	Pea (Pisum sativum) extract
	Kiwi (Actinidia chinensis) fruit extract, seed oil	Peach (Prunus persica) extract, leaf extract
	Kola (Cola acuminata) extract	Pelargonium capitatum extract
20	Krameria triandra extract	Pellitory (Parietaria officinalis) extract
	Lady's mantle (Alchemilla vulgaris) extract	Pennyroyal (Mentha pulegium) extract
	Lady's Thistle (Silybum marianum) extract	Peony (Paeonia albaflora) extract
	Laurel (Laurus nobilis) extract	Peony (Paeonia obovata) root extract
25	Lavender (Lavandula angustifolia) extract, water	Peppermint (Mentha piperita) extract, oil
	Lemon (Citrus medica limonum) extract, juice extract, peel extract	Perilla ocmoides extract
	Lemon bioflauonoids extract	Periwinkle (Vinca minor) extract
	Lemongrass (Cymbopogon schoenanthus) extract	PEG-80 jojoba acid/alcohol
	Leopard flower (Belamcanda chinensis) root extract	PEG-120 jojoba acid/alcohol
30	Lettuce (Lactuca scariola sativa) extract	Pfaffia paniculata extract
	Licorice (Glycyrrhiza glabra) extract	Pheilodendron amurense extract
	Lilac (Syringa vulgaris) extract	Phospholipids
	Linden (Tilia argentea) extract	pimento (Pimenta officinalis) extract
35	Linden (Tilia cordata) extract, water	Pine (Pinus sylvestris) cone, needle extract
	Loquat (Eriobotrya japonica) leaf extract	Pineapple (Ananas sativus) extract
	Maidenhair fern extract	Plantain (Plantago major) extract
	magnolia kobus extract	Pollen extract
	Mallow extract	Pongamol
40	Mandragora officinarum extract	Poria Cocos extract
	Mannan	Pueraria lobata extract
	Marigold	Queen of the meadow extract
	Marine silts	Quillaja saponaria extract
	Matricaria (Chamomilla recutita) extract	Quince (Pyrus cydonia) seed extract
45	Meadowsweet (Spiraea ulmaria) extract	Quinoa (Chenopodium quinoa) extract
	Melon (Cucumis melo) extract	Raspberry (Rubus) extract
	MEA iodine	Rauwolfia (Serpentina) extract
	Mistletoe (Viscum album) extract	Red clover
	Mugwort (Artemisia princeps) extract, water	Rehmannia chinensis extract
50	Mulberry (Morus alba) root extract	Restharrow (Ononis spinosa) extract
	Mushroom extract	Rhododendron chrysanthum extract
	Myrrh (Commiphora myrrha) extract	Rhodophycea extract
	Nasturtium extract	Rhubarb (Rheum palmatum) extract
		Rice (Oryza sativa) bran extract

	Rice fatty acid	Willow (<i>Salix alba</i>) bark extract, extract
	Rose (<i>Rosa multiflora</i>) extract	Willow (<i>Salix alba</i>) leaf extract
	Rosemary (<i>Rosmarinus officinalis</i>) extract	Witch hazel (<i>Hamamelis virginiana</i>) extract
	Rubia tinctorum extract	Yarrow (<i>Achillea millefolium</i>) extract
5	Safflower (<i>Carthamus tinctorius</i>) extract	Yeast (<i>Saccharomyces cerevisiae</i>) extract (Faex)
	Sage (<i>Salvia officinalis</i>) extract, water	Yucca vera extract
	Sambucus nigra berry extract, extract	Zanthoxylum piperitum extract
	Sandalwood (<i>Santalum album</i>) extract	Zedoary (<i>Curcuma zedoaria</i>) oil
	Sanguinaria canadensis extract	
10	Saponaria officinalis extract	
	Sasa veitchii extract	Buffer
	Saxifraga sarmentosa extract	Ammonium carbonate, A. phosphate
	Scabiosa arvensis extract	Calcium hydroxide, C. phosphate
	Scutellaria baicalensis root extract	Citric acid
15	Silk extract	Ethanolamine HCl
	Silver fir (<i>Abies pectinata</i>) extract	Glycine
	Sisal (<i>Agave rigidia</i>) extract	Phosphoric acid
	Slippery elm extract	Potassium phosphate
	Soapberry (<i>Sapindus mukuross</i>) extract	Potassium sodium tartrate
20	Sophora angustifolia extract	Sodium acetate, S. citrate
	Sophora flavescens root extract	Sodium lactate, S. phosphate
	Sophora japonica extract	Succinic acid
	Soybean (<i>Glycine soja</i>) extract	Tromethamine
	Soy (<i>Glycine soja</i>) germ extract, protein, sterol	
25	Spearmint (<i>Mentha viridis</i>) extract, oil	Carrier
	Spinach (<i>Spinacia oleracea</i>) extract	Acrylates copolymer, spherical powder
	Spiraea ulmaria extract	Arginine
	Sunflower (<i>Helianthus annuus</i>) seed extract	Caprylic/capric triglyceride
	Sweet almond (<i>Prunus amygdalus dulcis</i>) extract	Caprylic/capric/lauryl triglyceride
30	Sweet cherry (<i>Prunus avium</i>) extract	Caprylic/capric/oleic triglyceride
	Sweet cicely (<i>Anthriscus cerefolium</i>) extract	Ceteareth-20
	Sweet clover (<i>Melilotus officinalis</i>) extract	Coconut (<i>Cocos nucifera</i>) oil
	Sweet violet (<i>Viola odorata</i>) extract	Cyclodextrin
	Swertia chirata extract	Dipropylene glycol
35	Tea (<i>Camellia sinensis</i>) extract	Glyceryl caprylate, G. caprylate/caprate
	Thyme (<i>Thymus vulgaris</i>) extract	Hydrated silica
	Tomato (<i>Solanum lycopersicum</i>) extract	Liposomes
	Tormentil (<i>Potentilla erecta</i>) extract	magnesium silicate
	Tuberose (<i>Polianthes tuberosa</i>) extract	Methyl propanediol
40	Turmeric (<i>Curcuma longa</i>) extract	PEG-8/SMDI copolymer
	Valerian (<i>Valeriana officinalis</i>) extract	Potassium chloride
	Walnut (<i>Juglans regia</i>) extract, leaf extract	PPG-12/SMDI Copolymer
	Water Lily (<i>Nymphaea alba</i>) root extract	PPG-51/SMDI Copolymer
	Watercress (<i>Nasturtium officinale</i>) extract	Propylene carbonate, P. glycol
45	Wheat (<i>Triticum vulgare</i>) extract, protein	Serum albumin
	Wheat (<i>Triticum vulgare</i>) germ extract	Sodium carboxymethyl beta-glucan
	Wheat bran lipids	Sodium chloride
	White ginger (<i>Hedychium coronarium</i>) extract	sodium magnesium silicate
	White nettle (<i>Lamium album</i>) extract	Tapioca dextrin
50	Wild agrimony (<i>Potentilla anserina</i>) extract	
	Wild cherry (<i>Prunus serotina</i>) bark extract	Chelators
	Wild indigo (<i>Baptista tinctoria</i>)	beta-Alanine diacetic acid
	Wild marjoram (<i>Origanum vulgare</i>) extract	Calcium disodium EDTA
		Disodium EDTA, -copper

	EDTA	<u>Cleansing</u>
	HEDTA	Birch (<i>Betula alba</i>) leaf extract
	Malic acid	Lemongrass (<i>Cymbopogon schoenanthus</i>) extract
5	Monostearyl citrate	Oat (<i>Avena sativa</i>) bran extract
	Pentasodium pentetate	Passion flower (<i>Passiflora laurifolia</i>) fruit extract
	Pentetic acid	Witch hazel (<i>Hamamelis virginiana</i>) extract
	Phytic acid	Yarrow (<i>Achillea millefolium</i>) extract
	Potassium aspartate	
10	Sodium aspartate	
	Sodium dihydroxyethylglycinate	
	Sodium hexametaphosphate	
	Tetrahydroxypropyl ethylenediamine	
	Tetrasodium EDTA	
15	Tripotassium EDTA	
	Trisodium EDTA, HEDTA	
	<u>Cell stimulant</u>	
	Aesculus chinensis extract	
	Artemisia apiacea extract	
20	Astrocaryum muru, A. tucuma extract	
	Bactris gasipaes extract	
	Borojoa sorbilis extract	
	Calendula amurrensis extract	
	Chrysanthemum morifolium extract	
25	Coccinea indica extract	
	Comfrey (<i>Symphytum officinale</i>) leaf extract	
	Condurango extract	
	Dandelion (<i>Taraxacum officinale</i>) extract	
	Echitea glauca extract	
30	Equisetum arvense extract	
	Eucalyptus (<i>Eucalyptus globulus</i>) extract	
	Eupatorium fortunei extract	
	Euterpe precatoria extract	
	Ficus racemosa extract	
35	Glycoproteins	
	Hierochloe odorata extract	
	Horse chestnut (<i>Aesculus hippocastanum</i>) extract	
	Inga edulis extract	
	Kadsura heteroclita extract	
40	Ligustrum lucidum extract	
	Lysimachia foenum-graecum extract	
	Mauritia flexosa extract	
	Maximilliana regia extract	
	Melaleuca bracteata, M. symphyocarp extract	
45	Nelumbium speciosum extract	
	Ocimum basilicum extract, O. sanctum extract	
	Paulownia imperialis extract	
	Pfaffia spp. extract	
	Pterocarpus marsupianus extract	
50	Rubus thunbergii extract	
	Selinum spp. extract	
	Shorea robusta extract	
	Xanthozylum bungeanum extract	
		<u>Conditioner</u>
		Acetamide MEA
		6-(N-Acetyl amino)-4-oxyhexyltrimonium chloride
		Acrylamidopropyltrimonium chloride/acrylamide copolymer
		Adipic acid/dimethylaminohydroxypropyl diethylene triamine copolymer
		AMP-isostearyl hydrolyzed wheat protein
		Apricot (<i>Prunus armeniaca</i>) kernel oil
		Behenalkonium chloride
		Behenamidopropyl dihydroxypropyl dimonium chloride
		Behenamidopropyl ethyldimonium ethosulfate
		Behenamidopropyl PG-dimonium chloride
		Behenamidopropylidimethylamine behenate
		Behenamine oxide
		Behenoyl PG-trimonium chloride
		Behenyl betaine
		Benzyltrimonium hydrolyzed collagen
		Canolamidopropyl betain
		Capramide DEA
		Caprylic/capric/lauric triglyceride
		Caprylyl pyrrolidone
		Cassia auriculata extract
		Cetamine oxide
		Cetearylkonium chloride
		Chitosan PCA
		Citric acid
		Cocamidopropyl dimethylamine, C.d. lactate, C.d. propionate
		Cocamidopropyl dimethylaminohydroxypropyl hydrolyzed collagen
		Cocamidopropylidimonium hydroxypropylhydrolyzed collagen
		Cocamidopropyl ethyldimonium ethosulfate
		Cocamidopropyl PG-dimonium chloride, C.P.c. phosphate
		Coco-morpholine oxide
		Coco/oleamidopropyl betaine
		Cocodimonium hydroxypropyl hydrolyzed hair keratin
		Cocodimonium hydroxypropyl hydrolyzed rice protein
		Cocodimonium hydroxypropyl hydrolyzed silk

5	Cocodimonium hydroxypropyl hydrolyzed soy protein Coconut alcohol N-Cocoyl-(3-amidopropyl)-N,N-dimethyl-N-ethyl ammonium ethyl sulfate	Hydroxypropyl guar hydroxypropyltrimonium chloride Hydroxypropyl-bis-isostearylpropyltrimonium chloride Hydroxypropyl bis-stearyltrimonium chloride Hydroxypropyltrimonium gelatin Hydroxypropyltrimonium hydrolyzed keratin H.h. silk
10	Collagen phthalate Dibehenyl/diarachidyl dimonium chloride Dibehenyldimonium chloride Dicetyltrimonium chloride Didecyldimonium chloride	Hydroxypropyltrimonium hydrolyzed wheat protein Isopropyl hydroxybutyramide dimethicone copolyol Isopropyl lanolate
15	Dihydroxyethyl cocamine oxide Dihydroxyethyl dihydroxypropyl stearmonium chloride Dihydroxyethyl tallow glycinate Dihydroxyethyl tallowamine oxide	Isostearamidopropyl betaine, I. dimethylamine Isostearamidopropyl dimethylamine gluconate Isostearamidopropyl dimethylamine glycolate Isostearamidopropyl dimethylamine lactat
20	Dilauryl acetyl dimonium chloride Dilinoleamidopropyl dimethylamine Dimethyl hydrogenated tallowamine Dimethyl lauramine, D.I. isostearate	Isostearamidopropyl ethyldimonium ethosulfate Isostearamidopropyl laurylacetodimonium chloride
25	Dimethyl myristamine, soyamine, stearamine Dimethylamidopropylamine dimerate Disodium hydrogenated cottonseed glyceride sulfosuccinate Disodium laureth sulfosuccinate	Isostearamidopropyl morpholine, I.m. lactate Isostearamidopropyl morpholine oxide Isostearamidopropyl PG-dimonium chloride Isostearaminopropalkonium chloride
30	Disodium lauroamphodiacetate Distearyltrimonium chloride Ethyl ester of hydrolyzed keratin N-Ethylether-bis-1,4-(N-isostearylaminopropyl-N,N-dimethyl ammonium chlo	Isostearyl hydrolyzed animal protein Isostearylaminopropyl dihydroxypropyl dimonium chloride Lactoglobulin Lauramidopropyl dimethylamine
35	Glutamic acid Glyceryl collagenate Glycine Guar hydroxypropyltrimonium chloride Henna (Lawsonia inermis) extract	Lauramidopropyl PG-dimonium chloride, I.P.c. phosphate Lauramine oxide Lauroampho PG-glycinate phosphate Lauroyl hydrolyzed collagen, L.h. elastin
40	Hydrogenated tallowamine oxide Hydrogenated tallowtrimonium chloride Hydrolyzed conchiorin protein Hydrolyzed egg protein Hydrolyzed extensin	Lauroyl silk amino acids Lauryl methyl gluceth-10 hydroxypropyl-dimonium chloride Lauryl phosphate, L. pyrrolidone Lauryldimonium hydroxypropyl hydrolyzed collagen, keratin, soy protein
45	Hydrolyzed fibronectin Hydrolyzed fish protein Hydrolyzed keratin Hydrolyzed lactalbumin Hydrolyzed milk protein	Linoleamidopropyl dimethylamine Milk amino acids Milk protein (Lactis proteinum)
50	Hydrolyzed oats Hydrolyzed reticulin Hydrolyzed soy protein Hydrolyzed sweet almond protein Hydrolyzed wheat protein/PVP copolymer	Myristalkonium chloride Myristamidopropyl betaine, M. dimethylamine Myrtrimonium bromide Oat (Avena sativa) protein Oleamide Oleamidopropyl betaine, O. dimethylamine
	Hydrolyzed wheat protein polysiloxane polymer Hydroxycetyl hydroxyethyl dimonium chloride Hydroxyproline Hydroxypropyl chitosan	Oleamidopropyl dimethylamine hydrolyzed collagen Oleamidopropylamine oxide Oleamine

	Oleamine oxide	Ricinoleamidopropyl ethyldimonium ethosulfate
	Oleoyl sarcosine	Ricinoleamidopropyltrimonium chloride
	Oleyl betaine	Ricinoleamidopropyltrimonium ethosulfate
5	Oleyl dimethylamidopropyl ethonium ethosulfate	Silicone quaternium-3, -4
	Palmitamidopropyl betaine	Silk amino acids
	Palmitamidopropyl dimethylamine	Sodium/TEA-lauroyl collagen amino acids
	Palmitamine, P. oxide	Sodium/TEA-lauroyl hydrolyzed keratin
	Panthenyl hydroxypropyl stardimonium chloride	Sodium/TEA-lauroyl keratin amino acids
10	PEG-2 milk solids	Sodium citrate
	PEG-2 oleammonium chloride	Sodium cocoyl hydrolyzed soy protein
	PEG-3 lauramine oxide	Sodium hydrogenated tallow dimethyl glycinate
	PEG-5 stearyl ammonium lactate	Sodium lauroyl collagen, keratin amino acids
	PEG-15 cocomonium chloride	Sodium lauroyl wheat amino acids
15	PEG-15 cocopolyamine	Sodium stearoamphoacetate
	PEG-15 tallowmonium chloride	Soluble keratin, wheat protein
	PEG-27	Soyamide DEA
	PEG-40	Soyamidopropyl benzylmonium chloride
	PEG-85 lanolin	Soyamidopropyl betaine, S. dimethylamine
	PEG-7000	Soyamidopropyl ethyldimonium ethosulfate
20	Polydimethicone copolyol	Soyethyl morpholinium ethosulfate
	Polymethacrylamidopropyltrimonium chloride	Soyethylidimonium ethosulfate
	Polyoxyethylene dihydroxypropyl linoleaminium chloride	Stearamide MEA
25	Polyquaternium-2, -5, -6, -11, -16	Stearamidoethyl diethylamine, ethanolamine
	Polyquaternium-17, -18, -24, -29, -44	Stearamidopropyl benzyl dimonium chloride
	Potassium dimethicone copolyol panthenyl phosphate	Searamidopropyl cetearyl dimonium tosylate
	Potassium lauroyl collagen amino acids	Stearamidopropyl dimethylamine stearate
	Potassium lauroyl hydrolyzed soy protein	Stearamidopropyl ethyldimonium ethosulfate
30	Potassium lauroyl wheat amino acids	Stearamidopropyl morpholine lactate
	Potassium stearoyl hydrolyzed collagen	Stearamidopropyl PG-dimonium chloride
	PPG-5 lanolin alcohol ether	phosphate
	PPG-9 diethylmonium chloride	Stearmine oxide
	PPG-20 lanolin alcohol ether	Stearidimonium hydroxypropyl hydrolyzed collagen, keratin
35	Proline	Stearidimonium panthenol
	Propylene glycol stearate	Stearoyl amidoethyl diethylamine
		Steartrimonium bromide
		Stearyl dimethicone
		Tallowamidopropyl dimethylamine
40	PVP/dimethiconylacrylate/polycarbamyl/poly glycol ester	Tetramethyl trihydroxy hexadecane
	PVP/dimethylaminoethylmethacrylate copolymer	TEA-cocoyl hydrolyzed collagen
	PVP/dimethylaminoethylmethacrylate/ polycarbamyl/polyglycol ester	Trachea hydrolysate
	PVP/hydrolyzed wheat protein copolymer	Tricetylmonium chloride
	Quaternium-22, -26, -33, -61, -62, -70, -80	Tridecyl salicylate
45	Quaternium-76 hydrolyzed collagen	Triethonium hydrolyzed collagen ethosulfate
	Rapeseedamidopropyl benzylmonium chloride	Wheat germamidopropalkonium chloride
	Rapeseedamidopropyl epoxypropyl dimonium chloride	Wheat germamidopropyl dimethylamine lactate
	Rapeseedamidopropyl ethyldimonium ethosulfate	Wheat germamidopropyl ethyldimonium ethosulfate
50	Rice peptide	Wheat peptide
	Ricinoleamidopropyl-dimonium ethosulfate	Yeast powder, deproteinated
	Ricinoleamidopropyl betaine	
	Ricinoleamidopropyl dimethylamine lactate	
		<u>Coupling agent</u>
		Acetyl monoethanolamine

	Butyloctanol	Decyl glucoside
	Myreth-3	Decyltetradeceth-25
	Oleyl alcohol	DEA lauryl sulfate
5	PPG-10 butanediol	Diamyl sodium sulfosuccinate
	PPG-10 cetyl ether	Dicyclohexyl sodium sulfosuccinate
	PPG-10 oleyl ether	Diisobutyl sodium sulfosuccinate
	PPG-15 stearyl ether	Disodium caproamphodiacetate
	PPG-22 butyl ether	Disodium caproamphodipropionate
	PPG-23 oleyl ether	Disodium capryloamphodiacetate
10	PPG-50 oleyl ether	Disodium capryloamphodipropionate
	Trideceth-7 carboxylic acid	Disodium cetearyl sulfosuccinate
	Denaturant	Disodium cocamido MEA-sulfosuccinate
	Brucine sulfate	Disodium cocamido MIPA-sulfosuccinate
15	Denatonium benzoate, saccharide	Disodium cocoamphodipropionate
	Nicotine sulfate	Disodium deceth-6 sulfosuccinate
	Sucrose octaacetate	Disodium isodecyl sulfosuccinate
	Thymol	Disodium lauramido MEA-sulfosuccinate
20	Dental powder	Disodium lauramido PEG-2 sulfosuccinate
	Dicalcium phosphate	Disodium laureth sulfosuccinate
	Silica	Disodium lauroamphodiacetate
	Sodium monofluorophosphate	Disodium lauroamphodipropionate
	Stannous fluoride	Disodium lauryl sulfosuccinate
25	Deodorant	Disodium myristamido MEA-sulfosuccinate
	Abietic acid	Disodium nonoxynol-10 sulfosuccinate
	Azadirachta indica extract	Disodium oleamido PEG-2 sulfosuccinate
	Chlorophyllin-copper complex	Disodium PEG-4 cocoamido MIPA-sulfosuccinate
30	Eugenia jambolana extract	Disodium ricinoleamido MEA-sulfosuccinate
	Farnesol	Disodium tallowiminodipropionate
	Fermented vegetable	Dodecylbenzene sulfonic acid
	Mauritia flexosa extract	Dodoxynol-6, -9
	Salvia miltiorrhiza extract	Isopropylamine dodecylbenzenesulfonate
35	Sodium aluminum chlorohydroxy lactate	Isostearamidopropyl betaine
	Spondias amara extract	Isostearath-6 carboxylic acid
	Triethyl citrate	Isostearoamphopropionate
	Zinc phenol sulfonate, Z. ricinoleate	Isostearyl hydroxyethyl imidazoline
		Lauramidopropylamine oxide
40	Depilatory	Laureth-11
	Barium sulfide	Lauroampho PG-glycinate phosphate
	Beeswax, oxidized	Lauryl glucoside, L. phosphate
	Calcium thioglycolate	Magnesium laureth sulfate, M. lauryl sulfate
	L-cysteine HCL	Magnesium PEG-3 cocamide sulfate
45	Potassium thioglycolate	MEA-dodecylbenzenesulfonate
	Sodium thioglycolate	MEA-laureth sulfate
	Thioglycerin	MIPA-laureth sulfate
		Myristamine oxide
	Detergent	Myristic acid
50	Ammonium laureth sulfate	Nonoxynol-10
	Ammonium lauryl sulfate	Oleoamphohydroxypropyl sulfonate
	Capramide DEA	Oleth-12, -15
	Cocamidopropyl dimethylamine lactate	Oleyl betaine
		Palmitamidopropyl betaine

	PEG-10 glyceryl stearate	Shikonin
	PEG-15 glyceryl stearate	Sodium capryloamphoacetate
	PEG-25 glyceryl isostearate	Tea tree (<i>Melaleuca alternifolia</i>) oil
5	Potassium cocoyl hydrolyzed collagen	p-Tertiaryphenol
	Sodium caproamphoacetate	
	Sodium cocoamphoacetate	
	Sodium cocoamphopropionate	
	Sodium cocomonoglyceride sulfate	
10	Sodium cocoyl hydrolyzed soy protein	
	Sodium cocoyl isethionate	Dispersant
	Sodium C12-15 pareth-25 sulfate	Alkylated polyvinylpyrrolidone
	Sodium C14-16 olefin sulfonate	C20-40, C30-50, C40-60 alcohols
	Sodium C14-17 alkyl sulfonate	Castor (<i>Ricinus communis</i>) oil
15	Sodium deceth sulfate	Ceteareth-20
	Sodium decyl diphenyl ether sulfonate	Cetyl PPG-2 isodeceth-7 carboxylate
	Sodium dodecylbenzenesulfonate	Cholesteryl/behenyl/octyldodecyl lauroyl glutamate
	Sodium dodecyldiphenyl ether sulfonate	
	Sodium iodate	Decaglycerol monodioleate
20	Sodium laureth-2 sulfate	Diisocetyl dodecanedioate
	Sodium laureth-3 sulfate	Diisostearyl adipate
	Sodium laureth-7 sulfate	Dimethicone copolyol methyl ether
	Sodium laureth-12 sulfate	Diocetyl dodecyl dimer dilinoleate
	Sodium laureth-13-carboxylate	Diocetyl dodecyl dodecanedioate
25	Sodium laureth sulfate	Ethyl hydroxymethyl oleyl oxazoline
	Sodium lauriminodipropionate	Glyceryl caprylate, G. caprylate/caprate
	Sodium lauroamphopropionate	Glyceryl diisostearate
	Sodium lauroyl methyl alaninate	Hydrogenated castor oil, H. lecithin
	Sodium lauryl phosphate, S.I. sulfate	Hydrogenated tallow glycerides
30	Sodium lauryl sulfoacetate	Isobutylene/MA copolymer
	Sodium methyl oleoyl taurate	Isocetyl alcohol
	Sodium methyl cocoyl taurate	Isopropyl C12-15-pareth-9-carboxylate
	Sodium methyllauroyltaurate	Isostearyl neopentanoate
	Sodium methylnaphthalenesulfonate	Lanolin acid
35	Sodium myreth sulfate	Laureth-4, -6, -16
	Sodium myristyl sulfate	Melanin
	Sodium octyl sulfate, oleyl sulfate	Nonoxynol-2, -18, -20, -30, -40
	Sodium POE alkyl ether acetate	Octoxynol-5, -10
	Sodium trideceth-7 carboxylate	Octoxynol 16, 30, 40, 70
40	Sodium trideceth sulfate	Octyldodeceth-5
	Sodium tridecyl sulfate	Octyldodecyl/dimethicone copolyol citrate
	Steareth-11, -30	Oleth-40
	TEA-dodecylbenzenesulfonate	Oleyl alcohol
	TEA-laureth sulfate	PEG-5 castor oil, glyceryl sesquioleate
	TEA-lauryl sulfate	PEG-6 beeswax
45	TEA-palm kernel sarcosinate	PEG-8/SMDI copolymer
	TEA-PEG-3 cocamide sulfate	PEG-9 castor oil, oleate, stearate
	Undecylenamidopropyl betaine	PEG-10 dioleate, stearamine
	Disinfectant	PEG-12 beeswax
50	Benzalkonium chloride	PEG-12 glyceryl dioleate, laurate
	Chlorophene	PEG-15 castor oil
	Didecyldimonium chloride	PEG-20 almond glycerides
	Myristalkonium saccharinate	PEG-20 glyceryl isostearate
		PEG-20 sorbitan triisostearate
		PEG-25 castor oil
		PEG-30 dipolyhydroxystearate
		PEG-40 hydrogenated castor oil PCA isostearate
		PEG-60 shea butter glycerides

	Poloxamer 101, 122, 181, 182, 184	Behenyl erucate, B. isostearate
	Polyglyceryl-2 sesquoisostearate	Benzyl laurate
	Polyglyceryl-3 diisostearate, oleate	Bladderwrack (<i>Fucus vesiculosus</i>) extract
	Polyglyceryl-5 distearate	Borage (<i>Borago officinalis</i>) seed oil
5	Polyglyceryl-6 mixed fatty acids	Borageamidopropyl phosphatidyl PG-dimonium chloride
	Polyglyceryl-10 diisostearate, distearate	Brain extract
	Polyglyceryl-10 decaoleate	Brazil nut (<i>Bertholetia excelsa</i>) oil
	Polyhydroxystearic acid	Butyl myristate, oleate, stearate
10	Polysorbate 40, 80	Butyloctanol
	Potassium polyacrylate	Butyloctyl oleate
	PPG-3 PEG-6 oleyl ether	C12-13, C12-16, C14-15 alcohols
	PPG-9 diethylmonium phosphate	C12-15 alcohols octanoate
	PPG-12/SMDI Copolymer	C12-15 alkyl benzoate
	PPG-15 stearyl ether	d1-C12-15 alkyl fumarate
15	PPG-25, PPG-40 diethylmonium chloride	C12-15 alkyl lactate
	PPG-51/SMDI Copolymer	Camellia kissi oil
	PVP/eicosene copolymer	Tea (<i>Camellia sinensis</i>) oil
	PVP/hexadecene copolymer	C10-30 cholesterol/lanostearol esters
	Rapeseed oil, ethoxylated high erucic acid	Canola oil
20	Ricinoleyl alcohol	Caprylic/capric triglyceride
	Sodium ceteth-13-carboxylate	Caprylic/capric triglyceride PEG-4 esters
	Sodium lignosulfonate, S. polymethacrylate	Caprylic/capric/lauric triglyceride
	Sodium polynaphthalenesulfonate	Caprylic/capric/linoleic triglyceride
	Sorbitan oleate	Caprylic/capric/oleic triglycerides
25	Steareth-10	Caprylic/capric/stearic triglyceride
	Tricontanyl PVP	Caprylic/capric/succinic triglyceride
	Triisostearin PEG-6 esters	Capsicum frutescens oleoresin
	Trioctyldodecyl citrate	Carrot (<i>Daucus carota sativa</i>) oil
30	Emollient	Cashew (<i>Anacardium occidentale</i>) nut oil
	Acetylated glycol stearate	Castor (<i>Ricinus communis</i>) oil
	Acetylated hydrogenated lanolin	Cetearyl behenate, C. candelillate
	Acetylated hydrogenated lard glyceride	Cetearyl isononanoate, C. octanoate
	Acetylated hydrogenated vegetable glyceride	Cetearyl palmitate, C. stearate
35	Acetylated lanolin, A.I. alcohol	Ceteth-10
	Acetylated lard glyceride	Cetostearyl stearate
	Acetylated monoglycerides	Cetyl C12-15 pareth-9 carboxylate
	Acetylated palm kernel glycerides	Cetyl acetate, C. alcohol
	Aleurites moluccana ethyl ester	Cetyl esters, C. lactate
40	Allantoin	Cetyl myristate, C. octanoate
	Aluminum/magnesium hydroxide stearate	Cetyl oleate, C. palmitate
	AMP-isostearoyl hydrolyzed soy protein	Cetyl PPG-2 isodeceth-7 carboxylate
	Apricot (<i>Prunus armeniaca</i>) kernel oil	Cetyl ricinoleate, C. stearate
	Arachidyl behenate	Cetyl stearyl octanoate
45	Argania spinosa oil	Chia (<i>Salvia hispanica</i>) oil
	Avocado (<i>Persea gratissima</i>) oil, unsaponifiables	Cholesteric esters
	Avocado oil ethyl ester	Cholesterol
	Babassu (<i>Orbignya oleifera</i>) oil	Cholesteryl/behenyl/octyldodecyl lauroyl glutamate
	Betyl isostearate, B. stearate	Cholesteryl hydroxystearate
50	Behenamidopropyl dihydroxypropyl dimonium chloride	Cholesteryl stearate
	Behenoxy dimethicone	Choleth-24
	Behenyl alcohol, B. behenate	C18-70 Isoparaffin

	C10-18, C12-18 triglycerides	Diocetyl cyclohexane
	C12-15 linear alcohols 2-ethylhexanoate	Diocetyl dodecyl dimer dilinoleate
	Cocamidopropyl PG-dimonium chloride	Diocetyl dodecyl dodecanedioate
	Cocoa (Theobroma cacao) butter	Diocetyl malate, D. sebacate, succinate
5	Coco-caprylate/caprate	Dipentaerythritol fatty acid ester
	Coco-rapeseedate	Dipentaerythritol hexacaprylate/hexacaprate
	Coconut (Cocos nucifera) oil	Dipentaerythritol hexahydroxystearate/isostearate
	Cocoyl hydrolyzed soy protein	Distearidimethylamine dilinoleate
	Collagen hthalate	Ditridecyl adipate
10	Colloidal oatmeal	Dog rose (Rosa canina) hips oil
	Comfrey (Symphytum officinale) leaf extract	Egg (Ovum) yolk extract
	Corn (Zea mays) oil	Emu (Dromiceius) oil
	Corn poppy (Papaver rhoeas) extract	Erucyl erucate
15	Cottonseed (Gossypium) oil	Ethyl avocadate
	Cuttlefish extract	Ethylhexyl isopalmitate
	Cyclomethicone	2-Ethylhexyl isostearate
	Deceth-4 phosphate	Ethyl linoleanate, E. minkate
	Decyl oleate	Ethyl morrhuate, E. myristate
	Decyltetradecanol	Ethyl oleate, E. olivate
20	Dialkyl dimethylpolysiloxane	Evening primrose (Oenothera biennis) extract, oil
	Dibutyl sebacate	Glycereth-4,5-lactate
	Dicapryl adipate	Glycereth-5 lactate
	Dicaprylyl ether, D. maleate	Glycereth-7 benzoate
25	Diethylene glycol diisononanoate	Glycereth-7 diisononanoate
	Diethylene glycol dioctanoate	Glycereth-7 triacetate
	bis-Diglyceryl/caprylate/caprate/isostearate/	Glycereth-7 trioctanoate
	hydroxystearate/adipate	Glycereth-12, -26
	bis-Diglyceryl/caprylate/caprate/isostearate/	Glycerol tricaprylate/caprate
	stearate/hydroxystearate/adipate	Glyceryl adipate, G. dioleate
30	Dihydroabietyl behenate	Glyceryl isostearate, G. lanolate
	Dihydroxyethyl tallowamine oleate	Glyceryl linoleate, G. monopyroglutamate
	Diisobutyl adipate	Glyceryl myristate, G. oleat
	Diisocetyl adipate, dodecanedioate	Glyceryl ricinoleate
	Diisodecyl adipate	Glyceryl triacetyl hydroxystearate
35	Diisopropyl adipate, dimer dilinoleate	Glyceryl triacetyl ricinoleate
	Diisopropyl sebacate	Glycosaminoglycans
	Diisostearoyl trimethylopropene siloxy silicate	Glycosophingolipids
	Diisostearyl adipate	Gold of Pleasure oil
40	Diisostearyl dimer dilinoleate	Grape (Vitis vinifera) seed oil
	Diisostearyl fumarate, D. malate	Hazel (Corylus avellana) nut oil
	Dilinoleic acid	Helianthus annum ethyl ester
	Dimethicone	Hexadecyl isopalmitate
	Dimethicone copolyol	Hexamethyldisiloxane
45	Dimethicone copolyol acetate, D.c. almondate	hexyl laurate
	Dimethicone copolyol isostearate, D.c. lactate	hexyldecano
	Dimethicone copolyol methyl ether	Hexyldecyl stearate
	Dimethicone copolyol phthalate	honey extract
	Dimethicone propylethylenediamine behenate	Hybrid safflower (Carthamus tinctorius) oil
50	Dimethiconol stearate	Hybrid sunflow (Helianthus annus) oil
	Dimethyl lauramine oleate	Hydrogenated C6-14 olefin polymers
	Diocetyl adipate	Hydrogenated castor oil
	Diocetyl dimer dilinoleate	Hydrogenated castor oil laurate
		hydrogenated coconut oil

	Hydrogenated cottonseed oil	Isostearyl diglyceryl succinate
	Hydrogenated C12-18 triglycerides	Isostearyl erucate, I. erucyl erucate
	Hydrogenated lanolin	Isostearyl isostearate, I. lactate
5	Hydrogenated lanolin, distilled	Isostearyl malate, I. myristate
	Hydrogenated lecithin	Isostearyl neopentanoate, palmitate
	Hydrogenated milk lipids	Isostearyl stearoyl stearate
	Hydrogenated mink oil	Isostearylamidopropyl dihydroxypropyl
	Hydrogenated palm kernel glycerides	dimonium chloride
	Hydrogenated palm oil	Isotridecyl isononanoate
10	Hydrogenated polyisobutene	Isotridecyl myristate
	Hydrogenated soybean oil	Jojoba (Buxus chinensis) oil
	Hydrogenated starch hydrolysate	Jojoba butter, J. esters
	Hydrogenated tallow glyceride	Jojoba oil, synthetic
	Hydrogenated tallow glyceride lactate	Kukui (Aleurites molaccana) nut oil
15	Hydrogenated turtle oil	Lactamide DGA
	Hydrogenated vegetable glycerides	Laneth-10 acetate
	Hydrogenated vegetable oil	Lanolin, L. acid
	Hydrolyzed collagen	Lanolin alcohol, L. oil
	Hydrolyzed conchiorin protein	Lanolin, ultra anhydrous
20	Hydrolyzed keratin	Lanolin wax
	Hydrolyzed mushroom (Tricholoma matsutake) extract	Lanostearoi
	Hydrolyzed oat protein	Lard glyceride
	Hydroxylated lanolin	Laureth-2, -3
25	Hydroxylated milk glycerides	Laureth-2 acetate, L. benzoate
	Hydroxystearic acid	Laureth-2-octanoate
	butter	Lauric/palmitic/oleic triglyceride
	Isobutyl palmitate, I. stearate	Lauryl behenate, L. lactate
	Isocetyl behenate, I. octanoate	Lauryl phosphae
30	Isocetyl palmitate, I. salicylate	Lauryldimethylamine isostearate
	Isocetyl stearate	Lesquerella fendleri oil
	Isodeceth-2 cocoate	Linoleic acid
	Isodecyl citrate, I. cocoate	Macadamia ternifolia nut oil
	Isodecyl isononanoate, I. laurate	Maleated soybean oil
35	Isodecyl neopentanoate	Mango (Magnifera indica) oil, seed oil
	Isodecyl octanoate, I. oleate	Mango kernel oil
	Isodecyl stearate	Meadowfoam (Limnanthes alba) seed oil
	Isododecane	Menhaden (Brevoortia tyrannus) oil
	Isoeicosane	Methyl acetyl ricinoleate
40	Isohexadecane	Methyl gluceth-20
	isononyl isononanoate	Methyl gluceth-20 benzoate, M.g. distearate
	Isopentyldiol	Methyl hydroxystearate, M. ricinoleate
	Isopropyl avocadate	Microcrystalline wax
	Isopropyl C12-15-pareth-9-carboxylate	Mineral oil (Paraffinum liquidum)
45	Isopropyl isostearate	Mink oil
	Isopropyl lanolate, I. linoleate	Musk rose (Rosa moschata) oil
	Isopropyl myristate, I. palmitate	Myreth-3
	Isopropyl PPG-2-isodeceth-7 carboxylate	Myreth-3 caprate, M. laurate
	Isopropyl sterate	Myreth-3 myristate, M. octanoate
50	Isosorbide laurate	Myristyl alcohol, M. lactate
	Isostearic acid	Myristyl myristate, M. octanoate
	Isostearyl alcohol	Myristyl propionate, M. stearate
	Isostearyl behenate, I. benzoate	Neatsfoot oil
		Neem (Melia azadirachta) seed oil

	Neopentyl glycol dicaprate	PEG-15 cocamine oleate/phosphate
	Neopentyl glycol dicaprate/dicaprylate	PEG-18
	Neopentyl glycol diisooctanoate	PEG-20
	Neopentyl glycol dioctanoate	PEG-20 hydrogenated castor oil isostearate
5	Oat (Avena sativa) bran extract, extract, flour	PEG-20 hydrogenated castor oil triisostearate
	Octacosanyl stearate	PEG-20 hydrogenated lanolin
	Octyl cocoate	PEG-24 hydrogenated lanolin
	Octyl hydroxystearate, O. isononanoate	PEG-25 PABA, P. propylene glycol stearate
10	Octyl neopentanoate, O. octanoate	PEG-40 glycetyl laurate
	Octyl oleate, O. palmitate	PEG-40 hydrogenated castor oil isostearate
	Octyl pelargonate, O. stearate	PEG-40 hydrogenated castor oil laurate
	Octyldecanol	PEG-40 hydrogenated castor oil triisostearate
	Octyldodecanol	PEG-40 jojoba oil
15	Octyldodecyl behenate, O. benzoate	PEG-50 hydrogenated castor oil laurate
	Octyldodecyl erucate, O. myristate	PEG-50 hydrogenated castor oil triisostearate
	Octyldodecyl oleate, O. ricinoleate	PEG-60 shea butter glycerides
	Octyldodecyl stearate	PEG-70 mango glycerides
	bis-Octyldodecyl stearoyl dimer dilinoleate	PEG-75
	Octyldodecyl stearoyl stearate	PEG-75 lanolin, P. shea butter glycerides
20	Oleamine oxide	PEG-75 shorea butter glycerides
	Oleic/palmitoleic/linoleic glycerides	PEG-150
	Oleic alcohol	PEG/PPG-17/6 copolymer
	Oleostearine	Pentaerythrityl dioleate
	Oleyl alcohol, O. erucate, O. oleate	Pentaerythrityl
25	Olive (Olea europaea) oil	isostearate/caprate/caprylate/adipate
	Orange (Citrus aurantium dulcis) peel wax	Pentaerythrityl stearate
	Orange roughy (Hoplostethus atlanticus) oil	Pentaerythrityl stearate/caprate/caprylate/adipate
	Palm (Elaeis guineensis) oil	Pentaerythrityl tetracaprylate/tetracaprate
30	Palm kernel glycerides	Pentaerythrityl tetraisononanoate, P.
	Palmitic acid	tetraisostearate
	Panthenyl triacetate	Pentaerythrityl tetralaurate, P. tetraoctanoate
	Partially hydrogenated canola oil	Pentaerythrityl tetraoleate, P. tetrapelargonate
	Partially hydrogenated soybean oil	Pentaerythrityl tetraoleate
35	Peach (Prunus persica) extract	Perfluorodecalin
	Peanut (Arachis hypogaea) oil	Perfluoropolymethylisopropyl ether
	PEG-2 diisononanoate, P. dioctanoate	Petrolatum
	PEG-2 milk solids	Phenethyl dimethicone
	PEG-4	Phenyl dimethicone, P. methicone, P.
40	PEG-4 diheptanoate, P. dilaurate	trimethicone
	PEG-5 C8-12 alcohols citrate	Phytantriol
	PEG-5 C14-18 alcohols citrate	Pistachio (Pistacia vera) nut oil
	PEG-5 hydrogenated castor oil	Placental enzymes
	PEG-5 hydrogenated castor oil triisostearate	Pollen extract
	PEG-6	Poloxamer 105 benzoate
45	PEG-6 capric/caprylic glycerides	Poloxamer 182 dibenzoate
	PEG-7 glyceryl cocoate	Polybutene
	PEG-8	Polydecene
	PEG-8 dilaurate, P. dioleate	Polydimethicone copolyol
	PEG-8/SMDI copolymer	Polyethylene glycol
50	PEG-9 stearyl stearate	Polyglyceryl-2 diisostearate, P. tetraisostearate
	PEG-10 stearyl stearate	Polyglyceryl-2 triisostearate
	PEG-12	Polyglyceryl-3 diisostearate, P. oleate
	PEG-12 dioleate, P. palm kernel glycerides	Polyglyceryl-3 stearate

	Polyglyceryl-6 dioleate	PPG-51/SMDI Copolymer
	Polyglyceryl-10 decaoleate, P. decastearate	PPG-53 butyl ether
	Polyglyceryl-10 tetraoleate	Propylene glycol ceteth-3 acetate
	Polyisobutene	Propylene glycol dicaprylate
5	Polyisobutene/isoheptapentacontahectane	Propylene glycol dicaprylate/dicaprate
	Polyisobutene/isoctoctabexacontane	Propylene glycol diisostearate, P.g. dioctanoate
	Polyisobutene/isopentacontaoctane	Propylene glycol dipeiargonate
	Polyisoprene	Propylene glycol isoceteth-3-acetate
10	Polyoxyethylene polyoxypropylene glycol	Propylene glycol isostearate, P.g. laurate
	Polyquaternium-2	Propylene glycol myristate
	Polysiloxane polyalkylene copolymer	Propylene glycol myristyl ether acetate
	Polysorbate 40	Propylene glycol stearate, SE
	Potassium dimethicone copolyol phosphate	Pumpkin (Cucurbita pepo) seed oil
	PPG-2-buteth-3	Quinoa (Chenopodium quinoa) oil
15	PPG-2 lanolin alcohol ether	Rapeseed (Brassica campestris) oil
	PPG-2 myristyl ether propionate	Rice (Oryza sativa bran oil, bran wax
	PPG-3 hydrogenated castor oil	Rice fatty acid
	PPG-3 myristyl ether	Safflower (Carthamus tinctorius) oil
	PPG-5-buteth-7	Salmon (Salmo) egg extract
20	PPG-5-laureth-5	Sesame (Sesamum indicum) oil
	PPG-5 butyl ether	Shark liver oil
	PPG-5 lanolin wax	Shea butter (Butyrospermum parkii)
	PPG-5 pentaerythrityl ether	Shea butter (Butyrospermum parkii) extract
	PPG-7-buteth-10	Shea butter, ethoxylate
25	PPG-8/SMDI copolymer	Shorea stenoptera butter
	PPG-9	Silybum marianum ethyl ester
	PPG-9-buteth-12	Sitostearyl acetate
	PPG-9 butyl ether	Skin lipids
30	PPG-10 butanediol, P. cetyl ether	Slippery elm extract
	PPG-10 methyl glucose ether	Sodium C8-16 isoalkylsuccinyl lactoglobulin sulfonate
	PPG-10 oleyl ether	Sodium carboxymethyl beta-glucan
	PPG-11 stearyl ether	Sodium ceteth-13-carboxylate
	PPG-12-buteth-16	Sodium dimethicone copolyol acetyl methyltaurate
35	PPG-12-PEG-50 lanolin	Sodium glyceryl oleate phosphate
	PPG-12-PEG-65 lanolin oil	Sodium hyaluronate, S. polymethacrylate
	PPG-12/SMDI Copolymer	Sorbeth-20
	PPG-14 butyl ether	Sorbitan isostearate, S. palmitate
	PPG-15 butyl ether, P. stearyl ether	Sorbitan sesquioleate, S. sesquistearate
40	PPG-15 stearyl ether benzoate	Sorbitan trioleate
	PPG-16 butyl ether	Soybean (Glycine soja) oil
	PPG-18 butyl ether	Spermaceti
	PPG-20	Sphingolipids
	PPG-20-buteth-30	Squalene
45	PPG-20 cetyl ether	Stearamidopropyl cetearyl dimonium tosylate
	PPG-24-glycereth-24	Steareth-4 stearate
	PPG-26	Stearic acid, S. hydrazide
	PPG-27 glyceryl ether	Stearoxy dimethicone
	PPG-28-buteth-35	Stearoxymethicone/dimethicone copolymer
50	PPG-30	Stearyl behenate, S. benzoate
	PPG-30 cetyl ether	Stearyl dimethicone, S. erucate
	PPG-40 butyl ether	Stearyl heptanoate, S. propionate
	PPG-50 cetyl ether, P. oleyl ether	

	Stearyl stearate	Behenamidopropyl dihydroxypropyl dimonium chloride
	Stearyl stearoyl stearate	Beheneth-5, -10, -20, -30
	Sucrose cocoate	Behenic acid
	Sunflower (<i>Helianthus annuus</i>) seed oil	Behenyl betain
5	Sweet almond (<i>Prunus amygdalus dulcis</i>) oil	Borageamidopropyl phosphatidyl PG-dimonium chloride
	Sweet cherry (<i>Prunus avium</i>) pit oil	Butyloctanol
	Synthetic jojoba oil	C12-20 acid PEG-8 ester
	Synthetic wax	C18-36 acid
	Tallow	Calcium dodecylbenzene sulfonate
10	Tetradecycleicosyl stearate	Calcium protein complex
	Tocopheryl acetate	Calcium stearate
	Tricaprin	Calcium stearoyl lactylate
	Tricaprylin	Capramide DEA
	Tricaprylyl citrate	Caprylic/capric acid
15	Tricholoma matsutake extract	Caprylic/capric glycerides
	Tridecyl behenate, T. cocoate	Castor oil, ethoxylate
	Tridecyl erucate, T. neopentanoate	Cetalkonium chloride
	Tridecyl octanoate, T. stearate	Ceteareth-2 -4 -5 -6
	Tridecyl stearoyl stearate	Ceteareth-2 phosphate
20	Tridecyl trimellitate	Ceteareth-5 phosphate
	Trihexyldecyl citrate	Ceteareth-8 -10 -11 -12
	Triisocetyl citrate	Ceteareth-10 phosphate
	Triisostearin	Ceteareth-15 -17 -20 -25
	Triisostearyl citrate	Ceteareth-27 -29 -30 -34
25	Triisostearyl trilinoleate	Cetearyl alcohol
	Trilaurin	Cetearyl glucoside
	Trilinolein	Ceteth-2 -4 -6 -10 -12 -13
	Trimethylolpropane tricaprylate/tricaprate	Ceteth-16 -20 -25 -30 -33
	Trimethylolpropane tricocoate	Cetethyldimonium bromide
30	Trimethylolpropane trilaureate	Cetrimonium chloride
	Trimyristin	Cetyl dimethicone copolyol
	Trioctanoin	Cetyl phosphate
	Trioctyldodecyl citrate	Cholesterol
	Triolein	Choelth-10 -15 -24
35	Tripalmitin	Cocamide DEA, C. MEA
	Tripropylene glycol citrate	Cocamidopropyl dimethylamine
	Tristearin	Cocamidopropyl PG-dimonium chloride
	Triundecanoin	phosphate
	Vegetable oil	Cocamine
40	Walnut (<i>Juglans regia</i>) oil	Coceth-7 carboxylic acid
	Wheat (<i>Triticum vulgare</i>) germ oil	Coconut acid
	Emulsifier	Copper protein complex
	Acetylated hydrogenated lard glyceride	Cottonseed glyceride
45	Acetylate hydrogenated vegetable glyceride	C12-13 pareth-3 -4 -9 -23
	Acetylated monoglycerides	C16-18 pareth-3 -5.5 -13 -19
	Acrylates/C10-C30 alkyl acrylate crosspolymer	Cyclodextrin
	Acrylates/vinyl isodecanoate crosspolymer	Decaglycerol monodioleate
	Acrylic acid/acrylonitrogen copolymer	DEA-ceteareth-2-phosphate
	2-Aminobutanol	DEA-cetyl phosphate
	Ammonium acrylates/acrylonitrogen copolymer	DEA-cyclocarboxypropyleate
	Arachidyl alcohol	DEA-oleth-3-phosphate
	Beeswax	

5	DEA-oleth-5-phosphate DEA oleth-10 phosphate DEA-oleth-20-phosphate Diceteareth-10 phosphoric acid Diethanolamine Diethylaminoethyl stearate Digiceryl stearate maiate Dihydrocholeth-15 -20 -30 Dihydrogenated tallow phthalic acid amide 10 Dilauryl acetyl dimonium chloride Dilinoleamidopropyl dimethylamine dimethicone copolyl phosphate Dilinoleic acid Dimethicone copolyol almondate 15 Dimethicone copolyol isostearate Dimethicone copolyol laurate Dimethicone copolyol methyl ether Cimethicone copolyol olivate Dimethicone copolyol phthaiate 20 Dipalmitoylethyl hydroxyethylmonium methosulfate Dipropylene glycol Disodium hydrogenated cottonseed glyceride sulfosuccinate 25 Disodium ricinoleamido MEA-sulfosuccinate Disodium staryl sulfosuccinate Disodium sulfosuccinamide Distearyl phthalic acid amide N-Dodecyl-N,N-dimethyl-N-(dodecyl acetate) 30 ammonium chloride Dodecylphenol-ethylene oxide condensate Egg (Ovum) yolk extract Emulsifying wax NF Ethoxylated fatty alcohol 35 N-Ethylether-bis-1,4-(N-isostearylaminopropyl- N,N-dimethyl ammonium chlo Ethyl hexanediol Euglena gracilis polysaccharide 40 Glycereth-26 phosphate Glyceryl caprylate, G. caprylate/caprate Glyceryl citrate/lactate/linoleate/oleate Glyceryl cocoate, G. dilaurate Glyceryl dilaurate, G. dioleate Glyceryl distearate, G. hydroxystearate 45 Glyceryl isostearate, G. lanolate Glyceryl laurate, G. linoleate Glyceryl mono-di-tri-caprylate Glyceryl myristate, G. oleate Glyceryl palmitate, G. ricinoleate 50 Glyceryl ricinoleate SE Glyceryl stearate, G. stearate citrate Glyceryl stearate lactate Glyceryl stearate SE	Glyceryl undecylenate Glycol distearate, G. oleate Glycol palmitate, G. stearate Glycol stearate SE Glycolamide stearate Glycosphingolipids Hydrogenated coco-glycerides Hydrogenated cottonseed glyceride Hydrogenated lanolin Hydrogenated lecithin Hydrogenated palm oil Hydrogenated soy glyceride Hydrogenated tallow glycerides Hydrogenated tallow glycerides citrate Hydroxycetyl phosphate Hydroxylated lanolin Hydroxylated lecithin Hydroxyoctacosanyl hydroxystearate Hydroxypropyl-bis- isostearylaminopropyl dimonium chloride Isoceteareth-8 stearate Isoceteth-10 stearate Isoceteth-20 Isocetyl alcohol Isolaureth-6 Isostearamidopropyl dimethylamine gluconate Isostearamidopropyl dimethylamine glycolate Isostearamidopropyl laurylacetodimonium chloride Isosteareth-2 -3 -10 -12 -20 -22 -50 Isostearth-2-octanoate Isostearth-10 stearate Isostearic acid isostearyl diglyceryl succinate Isostearylaminopropyl dihydroxypropyl dimonium chloride Karaya (Stericulia urens) gum Laneth-5 -10 -15 -16 -20 -40 Laneth-10 acetate Lanolin Lanolin alcohol Lanolin, ultra anhydrous Lanolin wax Lauramide DEA, L. MEA Lauramidopropyl dimethylamine Lauramidopropyl PG-dimonium chloride Laureth-1 -2 -3 -4 -5 Laureth-2-octanoate Laureth-3 phosphate Laureth-4 carboxylic acid Laureth-5 carboxylic acid Laureth-6 -7 -9 -11 -12 Laureth-11 carboxylic acid
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	Laureth-16 -20 -23 -25 -30	PEG-3 glyceryl tristearate
	Lauryl PCA	PEG-3 lanolate, P. sorbitan oleate
	Laurylmethicone copolyol	PEG-3 stearate
	Lecithin	PEG-4 dioleate, P. diisostearate
5	Linoleamidopropyl PG-dimonium chloride phosphate	PEG-4 dilaurate, P. distearate
	Lithium stearate	PEG-4 glyceryl distearate
	Magnesium sulfate hepta-hydrate	PEG-4 laurate, P. oleate
10	Maleated soybean oil	PEG-4 stearate
	Methoxy PEG-17/dodecyl glycol copolymer	PEG-4 stearyl stearate
	Methyl gluceth-20 distearate	PEG-4 tallate
	methyl glucose dioleate, M.g. sesquisostearate	PEG-5 castor oil, P. cocamine
	Methyl glucose sesquistearate	PEG-5 C12-C18 alcohols
	MEA-laureth sulfate	PEG-5 glyceryl isostearate
15	Myreth-3 -4 -7	PEG-5 glyceryl sesquioleate
	Myreth-3 myristate	PEG-5 glyceryl stearate
	Myristamidopropyl dimethylamine	PEG-5 glyceryl triisostearate
	Nonoxynol-1 -2 -4 -5 -6 -7	PEG-5 lanolate, P. oleamine
20	Nonoxynol-8 -9 -10 -11 -12 -13	PEG-5 soy sterol, P. soyamine
	Nonoxynol-14 -15 -18 -20 -30 -40 -50	PEG-5 stearamine, P. stearate
	Nonyl nonoxynol-5 -10	PEG-5 tallow amine
	Oat (Avena sativa) flour	PEG-6 capric/caprylic glycerides
	Octoxynol-1 -3 -5 -8 -10	PEG-6 cocamide
25	Octoxynol 16, 30, 40	PEG-6 C12-14 ether
	2-Octyl dodecyl alcohol	PEG-6 dilaurate, P. dioleate
	Octyldodecanoil	PEG-6 distearate, P. isostearate
	Octyldodeceth-20 -25	PEG-6 lauramide, P. laurate
	Oleamide DEA	PEG-6 oleate, P. palmitate
	Oleamidopropyl dimethylamine	PEG-6 sorbitan beeswax
30	Oleamine oxide	PEG-6 sorbitan laurate
	Oleic acid	PEG-6 sorbitan oleate
	Oleth-2 -3 -4 -5 -6 -7 -8 -9	PEG-6 sorbitan stearate
	Oleth-10 -12 -15 -20 -23	PEG-6 stearate
	Oleth-25 -30 -40 -50	PEG-6-32
35	Oleth 13	PEG-6-32 stearate
	Oleth-2 phosphate	PEG-7 glyceryl cocoate
	Oleth-3 phosphate	PEG-7 hydrogenated castor oil
	Oleth-5 phosphate	PEG-7 oleate
	Oleth-10 phosphate	PEG-7.5 tallowamine
40	Oleth-20 phosphate	PEG-8
	Palm acid	PEG-8 beeswax, P. castor oil
	Palmitamidopropyl dimethylamine	PEG-8 C12-14 ether
	Palmitic acid	PEG-8 dilaurate, P. dioleate
45	PEG-2 cocamine, P. distearate	PEG-8 distearate
	PEG-2 hydrogenated tallow amine	PEG-8 glyceryl laurate
	PEG-2 laurate, P. laurate SE	PEG-8 laurate, P. oleate
	PEG-2 oleamine, P. oleate	PEG-8, P. tallate
	PEG-2 soyamine, P. stearamine	PEG-9 castor oil
	PEG-2 stearate, P. stearate SE	PEG-9 diisostearate
50	PEG-3 cocamide	PEG-9 dioleate, P. distearate
	PEG-3 C12-C18 alcohols	PEG-9 laurate, P. oleate
	PEG-3 glyceryl isostearate	PEG-9 stearate
	PEG-3 glyceryl triisostearate	PEG-10 castor oil, P. cocamine

	PEG-10 C12-18 alcohols	PEG-25 propylene glycol stearate
	PEG-10 dioleate	PEG-25 soy stearol, P. stearate
	PEG-10 glyceryl isostearate	PEG-29 castor oil
	PEG-10 hydrogenated castor oil	PEG-30 castor oil
5	PEG-10 hydrogenated castor oil triisostearate	PEG-30 dipolyhydroxystearate
	PEG-10 lanolate	PEG-30 glyceryl cocoate
	PEG-10 polyglyceryl-2 laurate	PEG-30 glyceryl isostearate
	PEG-10 sorbitan laurate	PEG-30 glyceryl laurate
	PEG-10 soy sterol, P. stearamine	PEG-30 glyceryl oleate
10	PEG-10 stearate	PEG-30 glyceryl stearate
	PEG-11 babassu glycerides	PEG-30 hydrogenated castor oil
	PEG-11 castor oil	PEG-30 lanolin
	PEG-12 dilaurate, P. dioleate	PEG-30 sorbitan tetraoleate
	PEG-12 distearate	PEG-32 dilaurate, P. dioleate
15	PEG-12 glyceryl dioleate	PEG-32 distearate, P. laurate
	PEG-12 laurate, P. oleate	PEG-32 oleate, P. stearate
	PEG-12 stearate, P. tallate	PEG-33 castor oil
	PEG-14 avocado glycerides	PEG-35 castor oil, P. stearate
	PEG-15 castor oil	PEG-40 castor oil
20	PEG-15 cocamine	PEG-40 glyceryl isostearate
	PEG-15 glyceryl isostearate	PEG-40 glyceryl laurate
	PEG-15 glyceryl laurate	PEG-40 glyceryl triisostearate
	PEG-15 glyceryl ricinoleate	PEG-40 hydrogenated castor oil
	PEG-15 oleamine, P. oleate	PEG-40 hydrogenated castor oil PCA isostearate
25	PEG-15, P. stearamine	PEG-40 sorbitan diisostearate
	PEG-15 tallow amine	PEG-40 sorbitan lanolate
	PEG-15 tallow polyamine	PEG-40 sorbitan tetraoleate
	PEG-16	PEG-40 stearate
	PEG-16 hydrogenated castor oil	PEG-40/dodecyl glycol copolymer
30	PEG-16 soy sterol	PEG-42 babassu glycerides
	PEG-18 stearate	PEG-44 sorbitan laurate
	PEG-20 almond glycerides	PEG-45 palm kernel glycerides
	PEG-20 castor oil, P. dilaurate	PEG-45 safflower glycerides
	PEG-20 dioleate, P. distearate	PEG-50 lanolin, P. stearamine
35	PEG-20 glyceryl laurate	PEG-50 stearate
	PEG-20 glyceryl oleate	PEG-60 almond glycerides
	PEG-20 glyceryl stearate	PEG-60 castor oil
	PEG-20 glyceryl triisostearate	PEG-60 corn glycerides
	PEG-20 glyceryl tristearate	PEG-60 glyceryl triisostearate
40	PEG-20 hydrogenated castor oil	PEG-60 hydrogenated castor oil
	PEG-20 hydrogenated lanolin	PEG-60 hydrogenated castor oil isostearate
	PEG-20 lanolin, P. laurate	PEG-60 hydrogenated castor oil triisostearate
	PEG-20 oleate	PEG-60 shea butter glycerides
	PEG-20 methyl glucose sesquistearate	PEG-60 sorbitan tetraoleate
45	PEG-20 sorbitan beeswax	PEG-70 mango glycerides
	PEG-20 sorbitan isostearate	PEG-75
	PEG-20 sorbitan triisostearate	PEG-75 castor oil, P. dilaurate
	PEG-20 sorbitan trioleate	PEG-75 dioleate, P. distearate
	PEG-20 stearate, P. tallow amine	PEG-75 lanolin, P. laurate
50	PEG-23 oleate, P. stearate	PEG-75 oleate
	PEG-24 hydrogenated lanolin	PEG-75 shea butter glycerides
	PEG-25 castor oil	PEG-75 shorea butter glycerides
	PEG-25 phytosterol	PEG-75 stearate

	PEG-80 sorbitan laurate	Polysorbate 65, 80, 81, 85
	PEG-90 stearate	Potassium alginate, P. cetyl phosphate
	PEG-100 castor oil	Potassium laurate, P. myristate
	PEG-100 hydrogenated castor oil	Potassium tallate
5	PEG-100 lanolin, P. stearate	PPG-1-PEG-9 lauryl glycol ether
	PEG-120 distearate	PPG-2-ceteareth-9
	PEG-150 dilaurate, P. dioleate	PPG-3 isosteareth-9
	PEG-150 distearate, P. lanolin	PPG-3 PEG-6 oleylether
10	PEG-150 laurate, P. oleate	PPG-5-buteth-7
	PEG-150 stearate	PPG-5-ceteth-20
	PEG-200 castor oil	PPG-5-ceteth-10 phosphate
	PEG-200 glyceryl stearate	PPG-8 oleate
	PEG-200 hydrogenated castor oil	PPG-10 cetyl ether phosphate
	PEG-200 laurate, P. oleate	PPG-12-PEG-50 lanolin
15	PEG-400 laurate	PPG-15 stearyl ether
	Phosphate esters	PPG-24-buteth-27
	Phosphated amine oxides	PPG-25 laureth-25
	Phospholipids	PPG-26-buteth-26
	Poloxamer 101, 105, 122, 123, 124	PPG-26 oleate
20	Poloxamer 181, 182, 184, 185, 235, 237	PPG-36 oleate
	Poloxamer 238, 334, 338, 407	Propylene glycol alginate, P.g. dioleate
	Polyglyceryl-2 oleate	Propylene glycol hydroxystearate
	Polyglyceryl-2 polyhydroxystearate	Propylene glycol laurate, P.g. ricinoleate
25	Polyglyceryl-2 sesquisostearate	Propylene glycol ricinoleate SE
	Polyglyceryl-2 stearate	Propylene glycol stearate
	Polyglyceryl-2-PEG-4-distearate	Propylene glycol stearate, SE
	Polyglyceryl-2-PEG-4-stearate	Quaternium-33
	Polyglyceryl-3 diisostearate, P. dioleate	Rapeseedamidopropyl ethyldimonium ethosulfate
	Polyglyceryl-3 distearate	Rice (Oryza sativa) bran wax
30	Polyglyceryl-3 methylglucose distearate	Ricinoleamide DEA
	Polyglyceryl-3 oleate, P. polyricinoleate	Ricinoleic acid
	Polyglyceryl-3 stearate	Saponins
	Polyglyceryl-4 oleate, P. stearate	Selenium protein complex
	Polyglyceryl-6 dioleate, P. distearate	Silicone quaternium-5, -6
35	Polyglyceryl-6 laurate, P. myristate	Sodium acrylates vinyl isodecanoate crosspolymer
	Polyglyceryl-6 oleate, P. polyricinoleate	Sodium caproyl lactylate
	Polyglyceryl-6 stearate	Sodium carbomer
	Polyglyceryl-8 oleate	Sodium cetyl sulfate
	Polyglyceryl-10 decaoleate	Sodium C11-15 pareth-15 sulfonate
40	Polyglyceryl-10 diisostearate	Sodium isostearoyl lactylate
	Polyglyceryl-10 dioleate, P. dipalmitate	Sodium laureth-17 carboxylate
	Polyglyceryl-10 distearate, P. isostearate	Sodium lauroyl lactylate
	Polyglyceryl-10 laurate, P. linoleate	Sodium lauryl sulfate
	Polyglyceryl-10 mixed fatty acids	Sodium nonoxynol-6 phosphate
45	Polyglyceryl-10 myristate	Sodium octyl sulfate
	Polyglyceryl-10 oleate	Sodium oleate
	Polyglyceryl-10 pentastearate	Sodium oleyl sulfate
	Polyglyceryl-10 stearate	Sodium phosphate
	Polyglyceryl-10 tetraoleate	Sodium stearoyl lactylate
50	Polyglyceryl-10 trioleate	Sorbeth-20
	Polyoxyethylene polyoxypropylene glycol	Sorbitan isostearate, S. laurate
	Polyquaternium-5, -31	Sorbitan oleate, S. palmitate
	Polysorbate 20, 21, 40, 60, 61	Sorbitan sesquisostearate

	Sorbitan sesquioleate, S. sesquistearate	Eclipta alba extract
	Sorbitan stearate, S. triisostearate	Eucalyptus globulus oil
	Sorbitan trioleate, S. tristearate	Euphorium fortunei extract
	Soyamidopropyl dimethylamine	Euterpe precatoria extract
5	Soyamine	Hierochloe odorata extract
	Stearamide DEA	Kadsura heteriloba extract
	Stearamide DIBA-stearate	Ligustrum lucidum extract
	Stearamidoethyl diethylamine	Lysimachia foenum-graecum extract
10	Stearamidopropyl dimethylamine, lactate	Melaleuca bracteata extract
	Stearamidopropyl PG-dimonium chloride	Melaleuca hyperifolia extract
	phosphate	Melaleuca symphyocarp extract
	Stearamine	Melaleuca uncinata extract
	Stearamine oxide	Melaleuca wilsonii extract
15	Steareth-2, -4, -6, -7, -10, -11, -13	Nasturtium sinensis extract
	Steareth-2 phosphate	Nelumbium speciosum extract
	Steareth-15, -20, -21, -30, -100	Paulownia imperialis extract
	Stearic acid	Rosemary (Rosmarinus officinalis) oil
20	Sucrose cocoate, S. distearate	Selinum spp. extract
	Sucrose stearate	Trichomocas japonica extract
	Sythetic beeswax	Withania somniferum extract
	Tallow glyceride, acetylated hydrogenated	Yuzu oil
	Tallowamide DEA	Ziziphus jujuba extract
	Tallowamidopropyl dimethylamine	
	Talloweth-6	
25	Tetrasodium dicarboxyethyl stearyl sulfosuccinamide	Exfoliant
	TEA-acrylates/acrylonitrogens copolymer	Apricot (Prunus armeniaca) kernel powder
	Tissue extract	Glycolic acid
	Triceteareth-4 phosphate	Jojoba (Buxus chinensis) seed powder
30	Trideceth-3, -5, -6, -7, -8	Lactic acid Papain
	Trideceth-9, -10, -12, -15	PEG 11-Avocado Glycerides
	Tridecyl ethoxylate	Willow (Salix alba) bark extract
	Triethanolamine	
	Trilaureth-4 phosphate	
35	Triolein	Fiber
	Trisodium HEDTA	Corn (Zea mays) cob powder
	Tristearin	Nylon-66
		Oat (Avena sativa) bran, meal
		Rayon
	Enzyme	
40	Fermented vegetable	Film former
	Ganoderma lucidum oil	Acetylated lanolin
	Lipase	Acrylates/hydroxyesters acrylates copolymer
	Papain	Acrylate/octylarylamide copolymer
	Soy (Glycine soja) protein	Acrylate copolymer alkylated
45	Superoxide dismutase	polyvinylpyrrolidone
		Ammonium acrylates/acrylonitrogens copolymer
		Betaglucan
		Bladderwrack (Fucus vesiculosus) extract
	Essentail oil	Carboxymethylchitosan
	Aesculus chinensis extract	N,O-Carboxymethylchitosonium
	Artemisia apiacea extract	Chitosan lactate
50	Brassica rapa-depressa extract	Collagen
	Caraway (Carum carvi) oil	Collagen phthalate
	Cardamon (Elettaria cardamomum) oil	Colloidal oatmeal
	Clove (Eugenia caryophyllus) oil	Desamido collagen

	Diisostearoyl trimethylolpropane siloxy silicate	Wheat peptide
	DMHF	
	Ethyl ester of hydrolyzed silk	
	Ethylcellulose	
5	Gellan gum	<u>Fixative</u>
	Glycerin/diethylene glycol/adipate crosspolymer	Acrylates copolymer
	High beta-glucan barley flour	Adipic acid/dimethylaminohydroxypropyl diethylene triamine copolymer
	Hydrolyzed collagen	AMP-acrylates copolymer
	Hydrolyzed keratin	Hydrolyzed zein
10	Hydrolyzed oat protein	Methacrylol ethyl betaine/acrylates copolymer
	Hydrolyzed pea protein	Methyl rosinate
	Hydrolyzed reticulin	Polyquaternium-4, -10, -29
	Hydrolyzed RNA	PPG-20 methyl glucose ether
	Hydrolyzed silk	Sodium polystyrene sulfonate
15	Hydrolyzed soy protein	
	Hydrolyzed wheat protein	<u>Flavor (aroma)</u>
	Hydrolyzed wheat protein/dimethicone copolyol phosphate copolymer	Benzaldehyde
	Hydrolyzed wheat protein/PVP copolymer	Caraway (Carum carvi) oil
20	Hydroxypropylcellulose	Cardamom (Elettaria cardamomum) oil
	Hydroxypropyltrimonium gelatin	Cinnamon (Cinnamomum cassia) oil
	Jojoba (Buxus chinensis) oil	Clove (Eugenia caryophyllus) oil
	Lactoglobulin	Ethyl vanillin
	Myristoyl hydrolyzed collagen	Eucalyptus globulus oil
25	Nitrocellulose	Flavor (aroma)
	Oat (Avena sativa) extract, protein	Glutamic acid
	Polyethylene, ionomer	Glycyrrhetic acid
	Polyquaternium-6, -7, -11, -22, -39	Glycyrrhizin, ammoniated
	Polyvinyl acetate, P. alcohol	Methyl salicylate
30	<u>PVM/MA</u> decadiene crosspolymer	Orange (Citrus aurantium dulcis) oil
	PVP/Dimethiconylacrylate/polycarbamyl/polyglycol ester	Peppermint (Mentha piperita) oil
35	PVP/dimethylaminoethylmethacrylate copolymer	Rosemary (Rosmarinus officinalis) oil
	PVP/dimethylaminoethylmethacrylate/polycarbamyl/polyglycol ester	Sodium glycyrrhizinate
	PVP/eicosene copolymer	Thymol Vanillin
	PVP/hexadecene copolymer	
40	PVP/hydrolyzed wheat protein copolymer	<u>Foam booster</u>
	Rice peptide	Alkyldimethylamine oxide
	Sericin	Babassuamidopropyl betaine
	Shea butter (Butyrospermum parkii)	Babassuamidopropylamine oxide
	Shellac	Capryiyl pyrrolione
45	Sodium C12-15 pareth-7 sulfonate	Carageenan (Chondrus crispus)
	Sodium hyaluronate	Cocamide DEA, C. MIPA
	Souble collagen	Cocamidopropyl betaine
	Souble keratin	Cocamidopropyl dimethylamine lactate
	Souble wheat protein	Cocamidopropyl hydroxysultaine
50	TEA-acrylates/acrylonitrogens copolymer	Coco-betaine
	Tosylamide/epoxy resin	Coco/oleamidopropyl betaine
	Tricontanyl PVP	Cocoyl amido hydroxy sulfo betaine
	Triethonium hydrolyzed collagen ethosulfate	Cocoyl monoethanolamide ethoxylate
		DEA-hydrolyzed lecithin
		Dimethyl lauramine
		Disodium cocamido MEA-sulfosuccinate
		Disodium cocoamphodiacetate
		Disodium lauramido MEA-sulfosuccinate

	Disodium laureth sulfosuccinate	Ricinoleamide MEA
	Lauramide MIPA	Sesamide DEA
	Lauramidopropyl betaine	Wheat germamide DEA
	Lauryl betaine	
5	Myristamidopropyl dimethylamine dimethicone copoloyl phosphate	<u>Foamer</u>
	Myristamine oxide	Ammonium laureth sulfate
	Octyldodecyl benzoate	Ammonium laureth-5 sulfate
	Oleamide DEA, O. MIPA	Ammonium laureth-12 sulfate
10	Oleyl betaine	Ammonium lauryl sulfate, A.I. sulfosuccinate
	Palm kernelamide DEA	Ammonium myreth sulfate
	PEG-3 lauramine oxide	Ammonium nonoxynol 4 sulfate
	PPG-15 stearyl ether benzoate	Capryl caprylylglucoside
	PEG-7000	Cetyl betaine
15	Sodium cocoamphoacetate	Cocamide
	Sodium cocoyl isethionate	Cocamidopropyl dimethylamine
	Sodium laureth sulfate	Cocamidopropyl dimethylamine lactate
	Sodium lauroyl wheat amino acids	DEA-laureth sulfate
	Sodium octoxynol-2 ethane sulfonate	DEA lauryl sulfate
20	Soyamidopropyl betaine	Decyl glucoside
	Tallowamide MEA	Disodium caproamphodiacetate
	Foam stabilizer	Disodium caproamphodipropionate
	Babassuamidopropylamine oxide	Disodium capryloamphodiacetate
25	Behenamine oxide	Disodium cocoamphodipropionate
	Caprylyl pyrrolidone	Disodium lauroamphodiacetate
	Cetamine oxide	Disodium lauroamphodipropionate
	Cocamide DEA, C. MEA, C. MIPA	Disodium lauryl sulfosuccinate
	Cocamidopropyl betaine	Disodium oleamido MEA-sulfosuccinate
30	Cocamidopropyl hydroxysultaine	Disodium oleamido MIPA-sulfosuccinate
	Cocamidopropyl lauryl ether	Disodium PEG-4 cocoamido MIPA- sulfosuccinate
	Cocamidopropylamine oxide	Isostearamidopropylamine oxide
	Cocamine oxide	Lauryl glucoside
	Dihydroxyethyl C12-15 alkoxypropylamine oxide	Methyl gluceth-20
35	Dihydroxyethyl cocamine oxide	MEA-laureth sulfate
	Dihydroxyethyl tallowamine oxide	Mixed isopropanolamines myristate
	Erucamidopropyl hydroxysultaine	MIPA-lauryl sulfate
	Hydroxypropyl methylcellulose	PEG-80 sorbitan laurate
	Isostearamide DEA	PEG lauryl ether sulfate
40	Lauramide DEA, L. MEA	Potassium cocoate, P. lauryl sulfate
	Lauramido propylamine oxide	Quillaja saponaria extract
	Lauramine oxide	Sodium caproamphoacetate
	Laureth-10	Sodium capryloamphoacetate
	Lauric-linoleic DEA	Sodium capryloamphohydroxypropylsulfonate
45	Lauroyl-linoleoyl diethanolamide	Sodium cocoamphoacetate
	Lauroyl-myristoyl diethanolamide	Sodium cocoamphopropionate
	Lauryl pyrrolidone	Sodium C12-15 pareth-25 sulfate
	Linoleamide MEA	Sodium C12-15 pareth-3 sulfonate
	Myristamide DEA, M. MEA	Sodium C12-15 pareth-15 sulfonate
50	Oleamide MEA	Sodium C14-16 olefin sulfonate
	Palmitamide MEA	Sodium deceth sulfate
	PEG-3 lauramide	Sodium laureth-2 sulfate
	PEG-4 oleamide	Sodium laureth-3 sulfate
		Sodium laureth-7 sulfate

	Sodium lauriminodipropionate	Algin
	Sodium lauryl ether sulfosuccinate	Aluminum distearate, A. tristearate
	Sodium lauryl sulfate, S.I. sulfoacetate	Ammonium acrylates/acrylonitrogens copolymer
	Sodium lauryl sulfosuccinate	Behenic acid
5	Sodium magnesium lauryl sulfate	Calcium alginate
	Sodium myreth sulfate, S. myristyl sulfate	Carbomer
	Sodium trideceth sulfate	Carboxymethylchitosan
	Sodium tridecyl sulfate	N,O-Carboxymethylchitosonium
10	TEA-dodecylbenzenesulfonate	Carrageenan (Chondrus crispus)
	TEA-laureth sulfate	Ceresin
	TEA-lauroyl collagen amino acids	Cetearyl candelillate
	TEA-lauroyl keratin amino acids	Dibenzylidene sorbitol
	TEA-lauryl sulfate	Ethylene/acrylic acid copolymer
15	TEA-palm kernel sarcosinate	Ethylene/VA copolymer
	Wheat germamidopropyl betain	Gellan gum
	Yucca vera extract	Hexanediol behenyl beeswax
	Fragrance	Hydrogenated jojoba oil
20	Chamaecyparis obtusa oil	Hydrogenated jojoba wax
	Orange (Citrus aurantium dulcis) oil	Hydroxystearic acid
	Peppermint (Mentha piperita) oil	Jojoba wax
	Phenethyl alcohol	Laneth-5, -15
		Montmorillonite
25	Fragrance solvent	Myreth-3-octanoate
	Benzyl benzoate	Octacosanyl stearate
	Diethyl phthalate	Oleth-3 phosphate
	Triacetin	Oleth-10 phosphate
	Triethyl citrate	Poloxamer 105, 123, 124, 185, 235
30	Fungicide	Poloxamer 237, 238, 338, 407
	Astrocaryum murumuru extract	Polyethylene
	Azadirachta indica extract	Polyethylene, oxidized
	Captan	Polyquaternium-31
35	Diiodomethyltolylsulfone	Potassium alginate, P. chloride
	Ficus racemosa extract	Sodium nonoxynol-6 phosphate
	Hexetidine	Sodium tallowate
	Ligusticum jeholense extract	Synthetic beeswax
	Mauritia flexosa extract	TEA-acrylates/acrylonitrogens copolymer
	Melaleuca symphyocarp extract	Tribehenin
40	Melia australasica extract	Glosser
	Melia azadirachta extract	C18-36 acid glycol ester
	Mushroom (Cordyceps sabolifera) extract	Diphenyl dimethicone
	Mushroom (Coriolus versicolor) extract	Methyl gluceth-10
	Sodium undecylenate	Octylidodecyl lactate
45	Tea tree (Melaleuca alternifolia) oil	Phenyl methicone, P. trimethicone
	Thiabendazole	Polyglyceryl-2 dioleate
	Undecylenamide MEA	Polyisobutene
	Zinc undecylenate	Polyisobutene/isoheptapentacontahexane
	Ziziphus jujuba extract	Polyisobutene/isooctahexacontane
50	Gellant	Polymethacrylamidopropyltrimonium chloride
	Acrylic acid/acrylonitrogens copolymer	PPG-10 methyl glucose ether
	Agar	PPG-36 oleate
		Tea (Camellia sinensis) oil
		Tribehenin

	Hair care	
	Gentiana scabra extract	Dimethicone hydroxypropyl trimonium chloride
	Maidenhair fern extract	Dimethyl lauramine dimer dilinoleate
	Nicotinamide	Dioleylamidoethyl hydroxyethylmonium methosulfate
5	Nicotinic acid	Dipalmitoylethyl hydroxyethylmonium methosulfate
	Paeonia lactiflorum extract	Diphenyl dimethicone
	Watercress (<i>Nasturtium officinale</i>) extract	Ditallowdimonium chloride
	Hair conditioner	N-Dodecyl-N,N-dimethyl-N-(dodecyl acetate) ammonium chloride
10	Amino bispropyl dimethicone	Entada phaseoloides extract
	Amodimethicone	Ethyl ester of hydrolyzed animal protein
	AMPD-isostearoyl hydrolyzed collagen	Gelatin
	Aqua Ichthammol	Ginseng hydroxypropyltrimonium chloride butylene glycol
15	Babassu (<i>Orbignya oleifera</i>) oil	Hematin
	Babassuamidopropalkonium chloride	Honey (Miel)
	Behenamidopropyl dimethylamine	Hydrolyzed collagen
	Behenamidopropyl hydroxyethyl dimonium chloride	Hydrolyzed hair keratin
	Behentrimonium chloride	Hydrolyzed vegetable protein
20	Biotin	Hydrolyzed wheat protein/dimethicone copolyol acetyl copolymer
	Bishydroxyethyl biscetyl malonamide	Hydrolyzed wheat protein hydroxypropyl polysiloxane
	Borageamidopropyl phosphatidyl PG-dimonium chloride	Hydroxyethyl cetylmonium phosphate
	Brazil nut (<i>Bertholetia excelsa</i>) oil	Hydroxypropyl trimonium hydrolyzed collagen
25	Cetearyl trimonium methosulphate	Hydroxypropyl trimonium hydrolyzed wheat protein polysiloxane copolymer
	Cetrimonium bromide, C. chloride	Hyssop (<i>Hyssopus officinalis</i>) extract
	Cetyl pyridinium chloride	Inga edulis extract
	Chia (<i>Salvia hispanica</i>) oil	Isostearimidopropylamine oxide
	Chrysanthemum morifolium extract	Isostearoyl hydrolyzed collagen
30	Cinchona succirubra extract	Keratin amino acids
	Cocamidopropyl dimethylamine propionate	Kiwi (<i>Actinidia chinensis</i>) fruit extract
	Coccinea indica extract	Kola (<i>Cola acuminata</i>) extract
	Cocodimonium hydroxypropyl hydrolyzed collagen	Laminaria japonica extract
35	Cocodimonium hydroxypropyl hydrolyzed keratin	Laurtrimonium chloride
	Cocodimonium hydroxypropyl silk amino acids	Lauryl hydroxypropyl trimonium polysiloxane copolymer
	Cocodimonium hydroxypropyl hydrolyzed wheat protein	Lauryldimethylamine isostearate
	Cocodimonium hydroxypropyloxyethyl cellulose	Lauryldimonium hydroxypropyl hydrolyzed collagen
40	Cocotrimonium chloride	Lauryldimonium hydroxypropyl hydrolyzed wheat protein
	Collagen amino acids	Linoleamidopropyl dimethylamine dimer dilinoleate
	Cyclomethicone	Linoleamidopropylidimethylamine
	L-cysteine HCL	Lysimachia foenum-graecum extract
	Dibehenyldimonium methosulfate	Melaleuca hyperifolia extract
45	Dicetylmonium chloride	Ocimum sanctum extract
	Dicocodimonium chloride	Olealkonium chloride
	Dihydroxyethyl tallowamine oleate	Oleyl dimethylamidopropyl ethonium ethosulfate
	Dimethicone	Palmitamidodecanediol
	Dimethicone copolyol acetate, D.c. almondate	
50	Dimethicone copolyol amine	
	Dimethicone copolyol bishydroxyethylamine	
	Dimethicon copolyol isostearate, D.c. laurate	
	Dimethicone copolyol olivate	

	Panthenyl ethyl ether	<u>Hair set resin polymer</u>
	Paulownia imperialis extract	Acrylates/acrylamide copolymer
	Peach (Prunus persica) leaf extract	Acrylates/PVP copolymer
5	PEG-2 cocomonium chloride	Acrylates/hydroxyesters acrylates copolymer
	PEG-120 jojoba acid/alcohol	Acrylates/octylarylamide copolymer
	PG-hydroxycellulose lauryldimonium chloride	AMP-acrylates copolymer
	PG-hydroxyethylcellulose cocodimonium chloride	Butylester of PVM-MA copolymer
	PG-hydroxyethylcellulose lauryldimonium chloride	Carboxylated vinylacetate terpolymer
10	PG-hydroxyethylcellulose stearylimonium chloride	Diglycol/CHDM/isophthalates/SIP copolymer
	Phenyl trimethicone	Eclipta alba extract
	Phospholipids	Ethyl ester of PVM/MA copolymer
	Phytantriol	Hydroxypropyl chitosan
15	Polyoxyethylene polyoxypropylene glycol	Isopropyl ester of PVM/MA copolymer
	Polypropylene glycol	Octylacrylamide/acrylates/butylaminoethyl methacrylate copolymer
	Polyquaternium-4, -6, -7, -10	Polymethacrylamidopropyltrimonium chloride
	Polyquaternium-22, -28, -39	Polypropylene glycol oligosuccinate
20	PPG-5-ceteth-10-phosphate	PVP
	Propyltrimonium hydrolyzed collagen	PVP/dimethylaminoethylmethacrylate copolymer
	propyltrimonium hydrolyzed soy protein	PVP/Polycarbamyl polyglycol ester
	Quaternium-18, -75, -81, -82	PVP/VA copolymer
	Quaternium-79 hydrolyzed keratin	PVP/VA vinyl propionate copolymer
25	Quaternium-79 hydrolyzed silk	Sodium polyacrylate
	Sambucus nigra extract, oil	VA/butyl maleate/isobornyl acrylate copolymer
	Sesamidopropalkonium chloride	VA/crotonates/vinyl neodecanoate copolymer
	Silicone quaternium-1, -8	VA/crotonates/vinyl propionate copolymer
	Sodium cocoamphoacetate	VA/crotonates copolymer
30	Sodium cocoyl hydrolyzed collagen	Vinyl caprolactam/PVP/ dimethylaminoethylmethacrylate copolymer
	Sodium polystyrene sulfonate	
	N-Soya-(3-amidopropyl)-N,N-dimethyl-N-ethyl ammonium ethyl sulfate	<u>Hair sheen</u>
	Stearylum chloride	Maidenhair fern extract
	Stearalkonium chloride	Tetrabutoxypropyl methicone
35	Stearamidopropyl dimethylamine	<u>Hair waving</u>
	Stearidimonium hydroxypropyl hydrolyzed wheat protein	Ammonium thioglycolate, A. thiolactate
	STearrimonium chloride	Argania spinosa oil
	Stearrimonium hydroxyethyl hydrolyzed collagen	L-cysteine HCL
40	N-Staryl-(3-amidopropyl)-N,N-dimethyl-N-ethyl ammonium ethyl sulfate	Cystine
	Stenocalyx micalii extract	Diammonium dithiodiglycolate
	Sulfur	Dilauryl thiodipropionate
	Tallowbenzyldimethylammonium chloride, hydrogenated	Ethanolamine sulfite, E. thioglycolate
	Tallowtrimonium chloride	Ethanolamine thiolactate
	Tea (Camellia sinensis) oil	Glyceryl thioglycolate
	TEA-cocoyl hydrolyzed soy protein	Hydroxymethyl dioxoazabicyclooctane
	Thenoyl methionate	Jojoba esters
45	Trimethylsilylamodimethicone	Monoethanolamine thiolactate
	Wheat amino acids	Shea butter, ethoxylated
		Sodium thioglycolate
		Thioglycerin
		Thioglycolic acid
50		Thiolactic acid

	Humectant	
	Acetamide MEA	PEG-4
	Acetyl monoethanolamine	Polyamino sugar condensate
5	6-(N-Acetylamino)-4-oxyhexyltrimonium chloride	Potassium lactate
	Adenosine phosphate	Propylene glycol
	Ammonium lactate	Propyltrimonium hydrolyzed collagen
	Atelocollagen	propyltrimonium hydrolyzed soy protein
10	Calcium pantothenate	Propyltrimonium hydrolyzed wheat protein
	Calcium stearoyl lactylate	Quaternium-22
	Carboxymethyl chitin	Rice (Oryza sativa) germ oil
	Carboxymethyl chitosan succinamide	Sea Salts (Maris sal)
	Chitosan PCA	Shea butter (Butyrospermum parkii)
	Cholesteryl hydroxystearate	Silk powder
15	Collagen amino-polysiloxane hydrolyzate	Sodium behenoyl lactylate
	Colloidal oatmeal	Sodium caproyl lactylate
	Copper PCA methylsilanol	Sodium cocoyl lactylate
	Dimethicone copolyol laurate	Sodium hyaluronate
20	Dipotassium glycyrrhizinate	Sodium isostearoyl lactylate
	Ethyl ester of hydrolyzed silk	Sodium lactate, S. lauroyl lactylate, S. PCA
	Fatty quaternary amine chloride complex	Sodium polyglutamate
	Glucos glutamate	Sodium stearoyl lactylate
	Glycereth-4,5-lactate	Sorbitan laurate
	Glycereth-7, -12, -26	Sorbitan sesquioleostearate
25	Glycerin	Sorbitol
	Honey extract	Sphingolipids
	Hydrogenated passion fruit oil	TEA-PCA
	Hydrolyzed casein	Urea
	Hydrolyzed fibronectin	Hydrotrope
30	Hydrolyzed glycosaminoglycans	Ammonium cumenesulfonate
	Hydrolyzed oat protein	Ammonium xylenesulfonate
	Hydrolyzed silk	Cetamine oxide
	Hydrolyzed soy protein	Cocamidopropylamine oxide
	Hydroxypropyl chitosan	Lauramine oxide
35	Hydroxypropyltrimonium hydrolyzed casein	Potassium toluenesulfonate
	Hydroxypropyltrimonium hydrolyzed silk	PPG-2-isodeceth-4, -6, -9, -12
	Hydroxypropyltrimonium hydrolyzed soy protein	Sodium cumene sulfonate
	Hydroxypropyltrimonium hydrolyzed wheat protein	Sodium laureth-13-carboxylate
40	Keratin amino acids	Sodium toluene sulfonate
	Lactamide DGA, MEA	Sodium xylene sulfonate
	Lactamidopropyl trimonium chloride	Trideceth-19-carboxylic acid
	Lactic acid	
	Lactose	
45	Lauroyl lysine	Intermediate
	Maltitol	Caprylic acid
	Mannitol	Deceth-3
	Methyl gluceth-10, -20	Diethyl succinate
	Natto gum	Dimethylaminopropylamine
50	Oat (Avena sativa) extract, protein	DM hydantoin
	Panthenol	Dodecylbenzene sulfonic acid
	Panthenyl ethyl ether	Ethylene dichloride
	PCA	4-Fluoro 3-nitro aniline
		Lauramine
		Methyl benzoate, M. cocoate
		Methyl isostearate, M. laurate

	Methyl myristate, M. palmitate	Mango (<i>Mangifera indica</i>) oil
	Oleic acid	Mineral oil (<i>Paraffinum liquidum</i>)
	Ricinoleic acid	Mink oil
	Tall oil acid	Monostearyl citrate
5	Tallow acid	Neatsfoot oil
	Lathering agent	Oleostearine
	Ammonium cocoyl sarcosinate	Partially hydrogenated soybean oil
10	Ammonium C12-15 alkyl sulfate	PEG-2 stearate
	Ammonium lauroyl sarcosinate	PEG-4 dilaurate
	Cocamide MEA ethoxylate	PEG-5M
	Cocamidopropyl dimethylaminohydroxypropyl hydrolyzed collagen	PEG-9M
	Lauroyl sarcosine	PEG-23M
15	Myristoyl sarcosine	PEG-27 lanolin
	Sodium cocoyl sarcosinate	PEG-30 lanolin
	Sodium lauroyl sarcosinate	PEG-40 lanolin, P. stearate
	Sodium methyl cocoyl taurate	PEG-45M
	Sodium myristoyl sarcosinate	PEG-90M
20	TEA-cocoyl sarcosinate	PEG-160M
	TEA-lauroyl sarcosinate	PEG/PPG-17/6 copolymer
	Lubricant	Pentaerythrityl tetrapelargonate
	Aluminum salt octenyl succinate	Petrolatum
25	Amodimethicone	Phenethyl dimethicone
	Boron nitride	Phenyl methicone
	Calcium aluminum borosilicate	Polyacrylamidomethylpropane sulfonic acid
	Caprylic/capric triglyceride	Polybutane
	Coceth-7 carboxylic acid	Polydimethicone copolyol
30	Coconut (<i>Cocos nucifera</i>) oil	Polyglycerol ester of mixed vegetable fatty acids
	Cyclomethicone	Polymethylsilsesquioxane
	Diisodecyl adipate	Potassium laurate, P. myristate
	Diisostearyl fumarate	Potassium tallowate
	Dimethicone copolyol	PPG-2 myristyl ether propionate
35	Glyceryl isostearate, G. oleate	PPG-3 myristyl ether
	Glyceryl polymethacrylate	PPG-9-buteth-12
	Gold of Pleasure oil	PPG-11 stearyl ether
	Hyaluronic acid	PPG-12-buteth-16
	Hydrogenated coconut oil	PPG-12-PEG-50 lanolin
40	Hydrogenated cottonseed oil	PPG-14 butyl ether
	Hydrogenated palm oil	PPG-20 cetyl ether
	Hydrogenated soybean/cottonseed oil	PPG-20-buteth-30
	Hydrogenated soybean oil	PPG-24-buteth-27
	Hydrogenated vegetable oil	PPG-28-buteth-35
45	Hydrolyzed oat flour	PPG-36 oleate
	Hydroxypropyl guar	PPG-40 butyl ether
	Isodecyl stearate	Quaternium-79 hydrolyzed keratin
	Isopropyl lanolate	Quaternium-79 hydrolyzed silk
	Isostearyl diglyceryl succinate	Rice (<i>Oryza sativa</i>) starch
50	Jojoba esters	Shea butter (<i>Butyrospermum parkii</i>) extract
	Lanolin oil	Shorea stenoptera butter
	Laureth-3 phosphate	Silica
	Magnesium myristate, M. stearate	Stearamide MEA, S. MEA-stearate
		Stearoxytrimethylsilane
		Stearyl dimethicone
		Triisostearyl citrate

5	Triolein Trisodium HEDTA Triundecanoin Zinc laurate, Z. stearate	Substantivity — Dimethicone copolyol bishydroxyethylamine, Dimethicone hydroxypropyl trimonium chloride, Trimethylsilylamodimethicone
10	Miscellaneous <i>Adhesion promoter</i> — Glycerin/diethylene glycol/adipate crosspolymer <i>Analgesic</i> — Glycol salicylate <i>Anesthetic</i> — Benzocaine <i>Anti-elastic</i> — Hydrolyzed <i>Ulva lactuca</i> extract <i>Anti-itching</i> — Sodium shale oil sulfonate <i>Antiacid</i> — Magnesium hydroxide, Magnesium silicate, Simethicone	<i>Sunless tanning</i> — Acetyl tyrosine, <i>Eclipta alba</i> extract in white emulsion <i>Tonic</i> — Kiwi (<i>Actinidia chinensis</i>) fruit extract, <i>Matricaria</i> (<i>Chamomilla recutita</i>) extract <i>Orange</i> (<i>Citrus aurantium dulcis</i>) peel extract <i>Viscosity stabilizer</i> — Diisodecyl adipate <i>Spreading agent</i> — Stearyl heptanoate <i>Wound healing</i> — Comfrey (<i>Symphytum officinale</i>) leaf extract <i>Waterproofing agent</i> — PVP/eicosene copolymer, PVP/hexadecene copolymer, Tricontanyl PVP
15	<i>Antifoam</i> — Dimethicone silylate, Simethicone <i>Antilipasic</i> — <i>Laminaria saccharina</i> extract <i>Antipruritic</i> — Coal tar <i>Antispasmodic</i> — Garlic (<i>Allium sativum</i>) extract <i>Antiwrinkle</i> — Chinese hibiscus (<i>Hibiscus rosa-sinensis</i>) extract	Moisture barrier Acrylates/octylarylamide copolymer Betaglucan C16-18 alkyl methicone Cholesterol Glycolipids Isoeicosane Isohexadecane Lanosterol Octyl pelargonate, O. stearate Polyisobutene Polyisobutene/isoheptadecane Polyisobutene/isoctahexacontane Silica silylate Trihydroxypalmitamidoxy propyl myristyl ether Trimethylsiloxysilicate
20	<i>Barrier</i> — Glycerin/diethylene glycol/adipate crosspolymer <i>Cell regeneration</i> — Glycoproteins, Hydrolyzed <i>Ulva lactuca</i> extract <i>Co-emulsifier</i> —	
25	Cholesteryl/behenyl/octyldodecyl lauroyl glutamate, Isododecane <i>Colloid</i> — Gelatin <i>Cooling agent</i> — Methyl PCA, Menthone glycerin acetal	Cholesteryl/behenyl/octyldodecyl lauroyl glutamate, Isododecane Gelatin Methyl PCA, Menthone glycerin acetal Octyl pelargonate, O. stearate Polyisobutene Polyisobutene/isoheptadecane Polyisobutene/isoctahexacontane Silica silylate Trihydroxypalmitamidoxy propyl myristyl ether Trimethylsiloxysilicate
30	<i>Detoxifier</i> — Clover (<i>Trifolium pratense</i>) extract <i>Dye stabilizer</i> — Uric acid <i>Filler</i> — Mica <i>Fragrance stabilizer</i> — 2,2',4,4'-Tetrahydroxybenzophenone	
35	<i>Free radical scavenger</i> — Melanin <i>IR filler</i> — <i>Corallina officinalis</i> <i>Lanolin substitute</i> — PEG-80 jojoba acid/alcohol <i>Lipolytic</i> — <i>Gelidium cartilagineum</i>	Moisturizer Acetamidopropyl trimonium chloride Adenosine triphosphate Aesculus chinensis extract Algae (<i>Ascophyllum nodosum</i>) extract Algae extract Aloe barbadensis, A.b. extract Ammonium lactate Amniotic fluid Apple (<i>Pyrus malus</i>) extract Apricot (<i>Prunus armeniaca</i>) kernel oil Arginine PCA Atelocollagen Artemisia apiacea extract Astrocryum murumuru extract Avocado (<i>Persea gratissima</i>) extract, oil Avocado (<i>Persea gratissima</i>) unsaponifiables Babassu (<i>Orbignya oleifera</i>) oil
40	<i>Oxident</i> — Barium peroxide, Hydrogen peroxide, Urea peroxide <i>Oxygen carrier</i> — Perfluorodecalin <i>Peroxide stabilizer</i> — Phenacetin, Sodium stannate	
45	<i>Scalp stimulant</i> — Birch (<i>Betula alba</i>) leaf extract <i>Sebostatic</i> — <i>Laminaria saccharina</i> extract <i>Shine enhancer</i> — Hydrolyzed wheat protein hydroxypropyl polysiloxane	
50	<i>Skin barrier lipid</i> — Ceramide 3, N(27-Stearoyloxy-heptacosanoyl) phytosphingosine <i>Skin clarifier</i> — Oat (<i>Avena sativa</i>) bran extract <i>Skin purifier</i> — Birch (<i>Betula alba</i>) leaf extract	

	Bactri gasipaes extract	Evening primrose (<i>Oenothera biennis</i>) extract, oil
	Bericnaca hispids extract	Galla sinensis extract
	Betaglucan	Ganoderma lucidum oil
	Betaine	Ginseng (<i>Panax ginseng</i>) extract
5	Borage (<i>Borago officinalis</i>) seed oil	Gleditsia sinensis extract
	Brazil nut (<i>Bertholetia excelsa</i>) extract, oil	Glycereth-12
	C10-30 cholesterol/lanosterol esters	Glyceryl alginate, G. collagenate
	Calcium pantothenate	Glyceryl polymethacrylate
10	Calcium protein complex	Glycolic acid
	Caprylic/capric triglyceride	Glycolipids
	Caprylic/capric/auric triglyceride	Glycosaminoglycans
	Caprylic/capric/linoleic triglyceride	Glycosphingolipids
	Caprylic/capric/oleic triglycerides	Gnetum amazonicum extract
15	Cashew (<i>Anacardium occidentale</i>) nut oil	Grape (<i>Vitis vinifera</i>) seed oil
	Celastrus paniculata extract	Hazel (<i>Corylus avellana</i>) nut oil
	Ceramide 33 (liquid soy extract)	Honey extract
	Chia (<i>Salvia hispanica</i>) oil	Hyaluronic acid
	Chinese hibiscus (<i>Hibiscus rosa-sinensis</i>) extract	Hybrid safflower (<i>Carthamus tinctorius</i>) oil
20	Chitin	Hydrogenated castor oil
	Chitosan, C. PCA	Hydrogenated coconut oil
	Cholesteric esters	Hydrogenated cottonseed oil
	Cholesterol	Hydrogenated lecithin
	Cholesteryl/behenyl/octyldodecyl lauroyl glutamate	Hydrogenated palm oil
25	Cocodimonium hydroxypropyl hydrolyzed collagen	Hydrogenated polyisobutene
	Cocodimonium hydroxypropyl hydrolyzed silk	Hydrogenated soybean oil
	Cocodimonium hydroxypropyl hydrolyzed wheat protein	Hydrogenated soybean/cottonseed oil
30	Cocodimonium hydroxypropyl silk amino acids	Hydrogenated vegetable oil
	Collagen	Hydrolyzed carbolipoprotein
	Collagen amino acids, C. phthalate	Hydrolyzed collagen
	Copper aspartate, C. protein complex	Hydrolyzed elastin
	Corn (<i>Zea mays</i>) oil	Hydrolyzed fibronectin
35	Cottonseed (<i>Gossypium</i>) oil	Hydrolyzed glycosaminoglycans
	Crataegus cuneata extract	Hydrolyzed keratin
	Cucumber (<i>Cucumis sativus</i>) extract	Hydrolyzed milk protein
	Desamido collagen	Hydrolyzed oats
	Dicaprylyl maleate	Hydrolyzed pea protein
40	Diisocetyl dodecanedioate	Hydrolyzed placental protein
	Diisostearyl adipate	Hydrolyzed rice protein
	Dimethyl hyaluronate	Hydrolyzed transgenic collagen
	Dimethylsilanol hyaluronate	Hydrolyzed serum protein
	Dioctyldodecyl dimer dilinoleate	Hydrolyzed silk
45	Dioctyldodecyl dodecanedioate	Hydrolyzed sweet almond protein
	Dipentaerythritol fatty acid ester	Hydrolyzed wheat protein
	Dog rose (<i>Rosa canina</i>) hips extract	Hydroxyethyl chitosan
	Dog rose (<i>Rosa canina</i>) seed extract	Inositol
	Echitea glauca extract	Isodecyl salicylate
50	Elastin amino acids	Isostearyl hydrolyzed animal protein
	Emblica officinalis extract	Jojoba (<i>Buxus chinensis</i>) oil
	Ethyl minkate	Jojoba esters
	Eugenia jambolana extract	Keratin amino acids
		Kiwi (<i>Actinidia chinensis</i>) fruit extract
		Kola (<i>Cola acuminata</i>) extract
		Kukui (<i>Aleurites moluccana</i>) nut oil

	Lactamide DGA, L. MEA	Pfaffia spp. extract
	Lactic acid	Pistachio (Pistacia vera) nut oil
	Lactobacillus/whey ferment	Placental protein
	Lactococcus hydrolysate	Plankton extract
5	Lactoyl methylsilanol elastinate	Polyamino sugar condensate
	Lanolin alcohol	Polybutene
	Lauryl PCA	Polyunsaturated fatty acids
	Lecithin	Potassium DNA, P. lactate, P. PCA
	Lesquerella fendleri oil	PPG-8/SMDI copolymer
10	Liposomes	PPG-20 methyl glucose ether distearate
	Lysine PCA	Propylene glycol dicaprylate/dicaprate
	Macadamia ternifolia nut oil	Propylene glycol dioctanoate
	Magnesium aspartate	Pumpkin (Cucurbita pepo) seed oil
	Maltitol	Quinoa (Chenopodium quinoa) extract
15	Manganese aspartate	Rapeseed (Brassica campestris) oil
	Mango (Mangifera indica) oil	Rehmannia chinensis extract
	Mannan	Rice (Oryza sativa) bran oil
	Marine polyaminosaccharide	Rose Water
	Mauritiella armata extract	Royal jelly extract
20	Maximiliana regia extract	Saccharide isomerase
	Meadowfoam (Limnanthes alba) seed oil	Saccharomyces lysate extract
	Melaleuca hyperifolia extract	Saccharomyces/soy protein ferment
	Methylsilanol elastinate, M. mannuronate	Safflower (Carthamus tinctorius) oil
	Milk amino acids	Selenium aspartate, S. protein complex
25	Mineral oil (Paraffinum liquidum)	Sericin
	Molybdenum aspartate	Serum albumin
	Mouriri apiranga extract	Sesame (Sesamum indicum) oil
	Natto gum	Shea butter (Butyrospermum parkii)
	Nelumbium speciosum extract	Shea butter (Butyrospermum parkii) extract
30	Neopentyl glycol dicaprate	Shorea stenoptera butter
	Oat (Avena sativa) protein	Silk amino acids
	Octyl hydroxystearate	Sodium carboxymethyl beta-glucan
	Ophiopogon japonicus extract	Sodium chondroitin sulfate
	Orange (Citrus aurantium dulcis) peel wax	Sodium DNA, S. hyaluronate
35	Palmetto extract	Sodium lactate, S. PCA
	Pantethine	Souble collagen
	Panthenyl ethyl ether	Souble transgenic elastin
	Paraffin	Soybean (Glycine soja) oil
	Partially hydrogenated soybean oil	Spherical cellulose acetate
40	peanut (Arachis hypogaea) oil	Spondias amara extract
	Pecan (Carya illinoensis) oil	Squalene
	PEG-4, -6, -8, -12	Stomach extract
	PEG-70 mango glycerides	Sunflower (Helianthus annuus) seed oil
	PEG-75 shea butter glycerides	Superoxide dismutase
45	PEG-75 shorea butter glycerides	Tissue extract
	PEG-100 stearate	Tocopheryl acetate, T. linoleate
	Pentaerythrityl	Tomato (Solanum lycopersicum) extract
	isostearate/caprate/caprylate/adipate	Tormentil (Potentilla erecta) extract
	Pentaerythrityl stearate/caprate/caprylate/adipate	Trehalose
50	Pentylene glycol	Triundecanoin
	Perfluoropolymethylisopropyl ether	Vegetable oil
	Petrolatum	Walnut (Juglans regia) oil
	Petroleum wax	Watercress (Nasturtium officinale) extract

	Wheat (Triticum vulgare) germ extract, germ oil	Glycol distearate, G. stearate
	Yarrow (Achillea millefolium) extract	Magnesium myristate
	Wheat amino acids	PEG-2 distearate, P. stearate
5	Yeast (Saccharomyces cerevisiae) extract (Faex)	PEG-2 stearate SE
	Yogurt filtrate	PEG-3 distearate
	Zinc aspartate	Propylene glycol myristate, P.g. stearate
	Ziziphus jujuba extract	Stearamide
	<u>Naturilizer</u>	Stearamide DIBA-stearate
10	2-Aminobutanol	Stearamide MEA
	Aminoethyl propanediol	Stearamide MEA-stearate
	Aminomethyl propanediol	Stearamidopropyl dimethylamine lactate
	Aminomethyl propanol	Stearyl stearate
15	Ammonium carbonate	Styrene homopolymer
	Calcium hydroxide	Styrene/acrylates copolymer
	Diethanolamine	Styrene/PVP copolymer
	Ethanolamine	Triisostearin PEG-6 esters
	Glucamine	<u>Plasticizer</u>
	Isopropanolamine	Acetyl tributyl citrate
20	Isopropylamine	Acetyl triethyl citrate
	2-Methyl-4-hydroxypyrrolidine	AMP-isostearoyl hydrolyzed wheat protein
	Morpholine	AMPD-isostearoyl hydrolyzed collagen
	Sodium bromate	Cyclohexane dimethanol dibenzoate
25	Succinic acid	Dibutyl phthalate
	Tetrahydroxypropyl ethylenediamine	Diethyl phthalate
	Triethanolamine	Diethylene glycol dibenzoate
	Tromethamine	Diisopropyl sebacate
	<u>Oil absorbent</u>	Dimethicone copolyol
30	Hydrated silica	Dimethyl phthalate
	Polymethyl methacrylate	Dipropylene glycol dibenzoate
	Silicon dioxide hydrate	Ethyl ester of hydrolyzed keratin
	Walnut (Juglans regia) shell powder	Glycerol tribenzoate
		Glycol
35	<u>Ointment base</u>	Hydrolyzed serum protein
	Borage (Borago officinalis) seed oil	Isocetyl salicylate
	Caprylic/capric/stearic triglyceride	Isodecyl benzoate
	Glyceryl cocoate	Isoeicosane
	Hydrogenated coco-glycerides	Isopropyl lanolate
40	Lanolin	Isostearoyl hydrolyzed collagen
	Mink oil	Lauroyl hydrolyzed collagen
	Oleostearine	Marine collagen
	Tallow	Monostearyl citrate
45	<u>Opacifier</u>	Neopentyl glycol dibenzoate
	Barium sulfate	Octyl benzoate, O. laurate
	C12-16 alcohols	PEG-60 shea butter glycerides
	Cetearyl octanoate	Pentaerythritol tetrabenzoate
50	Cetyl myristate, C. palmitate	Polyoxyethylene glycol dibenzoate
	Cocamidopropyl lauryl ether	Polypropylene glycol dibenzoate
	Glyceryl distearate	PPG-12-PEG-50 lanolin
	Glyceryl hydroxystearate	PPG-20 cetyl ether
	Glyceryl myristate, G. stearate	PPG-20 lanolin alcohol ether
		Propylene glycol dibenzoate
		Propylene glycol myristyl ether acetate

	Polymethacrylamidopropyltrimonium chloride	Tapioca dextrin
	Polyquaternium-6, -7, -10, -11, -22, -39	Zinc laurate
	Polysilicone-8	
5	Potassium alginate	
	Potassium lauroyl collagen amino acids	<u>Powder, absorbent</u>
	Potassium lauroyl hydrolyzed soy protein	Aluminum starch octenylsuccinate
	Potassium lauroyl wheat amino acids	Clays (white, yellow, red, green, pink)
	PPG-8/SMDI copolymer	Sorbitol
	PPG-12/SMDI copolymer	Tapioca
10	PPG-51/SMDI copolymer	
	PVM/MA decadiene crosspolymer	<u>Preservative</u>
	PVP/dimethylaminoethylmethacrylate copolymer	Alcohol
	PVP/VA copolymer	Ascorbic acid
	Sodium cocoyl hydrolyzed wheat protein	Ascorbyl palmitate
15	Steardimonium hydroxypropyl hydrolyzed wheat protein	Benzalkonium chloride
	Steareth-2 phosphate	Benzethonium chloride
	TEA-acrylates/acrylonitrogens copolymer	Benzoic acid
	Tosylamide/epoxy resin	Benzyl alcohol
20	Tosylamide/formaldehyde resin	Benzylparaben
	Trideceth-5, -6, -7, -8	5-Bromo-5 nitro-1,3-dioxane
	VA/butyl maleate/isobornyl acrylate copolymer	2-Bromo-2-nitropropane-1,2-diol
	VA/crotonates/vinyl neodecanoate copolymer	Butylparaben
	Vinyl caprolactam/PVP/dimethylaminoethylmethacrylate copolymer	Calcium propionate
25	Wheat (<i>Triticum vulgare</i>) protein	Cetrimonium bromide
	Xanthan gum	Cetyl pyridinium chloride
		Chloroxylenol
		Chlorphenesin
		o-Cymen-5-ol
		Diazolidinyl urea
		Dichlorobenzyl alcohol
30	<u>Powder</u>	Dichlorophene
	Acrylates copolymer, spherical powder	Diiodomethyltolylsulfone
	Attapulgite	Dimethyl hydroxymethyl pyrazole
	Boron nitride	Dimethyl oxazolidine
	Calcium aluminum borosilicate	Disodium EDTA
	Calcium carbonate	DMDM hydantoin
35	Cellulose triacetate	EDTA
	Corn (<i>Zea mays</i>) cob powder, starch	Erythorbic acid
	Hydrogenated jojoba wax	7-Ethylbicyclooxazolidine
	Magnesium carbonate, M. myristate	Ethylparaben
	Magnesium stearate	Fomistopsis officinalis oil
40	Mica	Formaldehyde
	Microcrystalline cellulose	Glutaral
	Nylon-6	Glyceryl laurate
	Nylon powder	HEDTA
	Oat (<i>Avena sativa</i>) starch	Hexamidine diisethionate
45	Polyamide 12	Hexetidine
	Polyethylene	Imidazolidinyl urea
	Polymethyl methacrylate	Isobutylparaben
	Polymethylsilsesquioxane	Isopropyl sorbate
	PTFE	Isopropylparaben
50	Silica	MDM hydantoin
	Silk powder	Methenammonium chloride
	Spherical cellulose acetate	Methyl paraben sodium
	Talc	

	Rice (<i>Oryza sativa</i>) bran wax	Ethylene/VA copolymer
	Serum protein	Glycereth-26 phosphate
	Tosylamide/epoxy resin	Hyaluronic acid
	Triacetin	Hydrolyzed RNA
5	Tributyl citrate	Hydrolyzed wheat protein polysiloxane polymer
	Triethyl citrate	Hydroxypropyltrimonium hydrolyzed collagen
	Trimethyl pentanediol dibenzoate	Hydroxypropyltrimonium hydrolyzed wheat
	Trimethylethanetribenzoate	protein
10	Polish	Laneth-40
	Acrylates copolymer	Lauryldimonium hydroxypropyl hydrolyzed soy
	Aluminum silicate	protein
	Neatsfoot oil	Methacryloyl ethyl betaine/acrylates copolymer
	Tallow	Octylacrylamide/acrylates/butylaminoethyl
		methacrylate copolymer
15	Polymer	Oleth-2 phosphate
	Acrylamide sodium acrylate copolymer	Oleth-5 phosphate
	Acrylates-VA crosspolymer	PEG-3 lanolate
	Acrylates/acrylamide copolymer	PEG-4 stearate
20	Acrylates/hydroxyesters acrylates copolymer	PEG-5M
	Acrylates/octylacrylamide copolymer	PEG-7 glyceryl cocoate
	Acrylates/steareth-20 methacrylate copolymer	PEG-8 glyceryl laurate
	Adipic acid-epoxypropyl diethylenetriamine	PEG-8/SMDI copolymer
	copolymer	PEG-9 castor oil
25	Adipic acid/dimethylaminohydroxypropyl	PEG-9M
	diethylene triamine copolymer	PEG-11 babassu glycerides
	Ammonium acrylates copolymer	PEG-12 palm kernel glycerides
	Ammonium acrylates/acrylonitrogens copolymer	PEG-12 stearate
	AMP-acrylates copolymer	PEG-14 avocado glycerides
30	AMP-isostearoyl hydrolyzed collagen	PEG-15 glyceryl laurate
	Butylester of PVM-MA copolymer	PEG-20 corn glycerides
	Calcium carrageenan	PEG-20 evening primrose glycerides
	Carboxylated vinylacetate terpolymer	PEG-20 glyceryl oleate
	Ceteareth-2 phosphate	PEG-23 oleate
35	Ceteareth-5 phosphate	PEG-23M
	Ceteareth-10 phosphate	PEG-29 castor oil
	Ceteareth-29, -34	PEG-42 babassu glycerides
	Coco-glucoside	PEG-45 safflower glycerides
	Cocodimonium hydroxypropoxyethyl cellulose	PEG-45M
40	C12-13 pareth-4, -9, -23	PEG-60 evening primrose glycerides
	DEA-ceteareth-2-phosphate	PEG-60 hydrogenated castor oil
	DEA-oleth-5-phosphate	PEG-75 castor oil
	DEA-oleth-20-phosphate	PEG-90M
	Diglycol/CHDM/isophthalates/SIP copolymer	PEG-120 distearate
45	Diisopropyl dimer dilinoleate	PEG-150 lanolin
	Diisostearoyl trimethylopropane siloxy silicate	PEG-160M
	Diisostearyl dimer dilinoleate	PG-hydroxycellulose lauryldimonium chloride
	Dilinoleic acid	PG-hydroxyethylcellulose cocodimonium chloride
50	Dodecanedioic acid/cetearyl alcohol/glycol	PG-hydroxyethylcellulose stearylimonium
	copolymer	chloride
	Eclipta alba extract	Polyethylene, ionomer
	Ethyl ester of PVM/MA copolymer	Polyethylene, micronized
	Ethylene/acrylic acid copolymer	Polyethylene, oxidized
		Polyglyceryl-2 polyhydroxystearate

	Methylichloroisothiazolinone	Cocodimonium hydroxypropyl hydrolyzed wheat protein
	Methyldibromo glutaronitrile	Cocoyl hydrolyzed collagen
	Methyliothiazolinone	Collagen, C. phthalate
5	Methylparaben	Collagen amino-polysiloxane hydrolyzate
	Mushroom (<i>Cordyceps sabolifera</i>) extract	Deoxyribonucleic acid
	Myrtrimonium bromide	Desamido collagen
	Pentasodium pentetate	Elastin amino acids
	Pentetic acid	Embryo extract
10	Phenethyl alcohol	Ethyl ester of hydrolyzed animal protein
	Phenol	Fibronectin
	Phenyl mercuric acetate	Gelatin
	o-Phenylphenol	Human placental protein
	Polyaminopropyl biguanide	Hydrolyzed collagen
15	Polymethoxy bicyclic oxazolidine	Hydrolyzed extensin
	Potassium sorbate	Hydrolyzed fish protein
	Propylparaben	Hydrolyzed hemoglobin
	Quaternium-15	Hydrolyzed keratin
	Salicylic acid	Hydrolyzed lactalbumin
20	Sodium benzoate, S. bisulfate	Hydrolyzed milk protein
	Sodium butylparaben, S. dehydroacetate	Hydrolyzed soy flour
	Sodium erythorbate, S. ethyl paraben	Hydrolyzed sweet almond protein
	Sodium hydroxymethylglycinate	Hydroxypropyltrimonium hydrolyzed collagen
	Sodium metabisulfite, S. methylparaben	Isostearoyl hydrolyzed collagen
25	Sodium o-phenylphenate	Keratin
	Sodium propionate, S. propylparaben	Lactoferrin
	Sodium pyrithione, S. salicylate	Lactoglobulin
	Sodium sulfite	Lauryldimonium hydroxypropyl hydrolyzed collagen
	Sorbic acid	Marine collagen
30	Tetrasodium EDTA	Methylsilanol elastinate
	Thimerosal	Potassium abietoyl hydrolyzed collagen
	Thymol	Potassium cocoyl hydrolyzed collagen
	Tris (hydroxymethyl) nitromethane	Potassium myristoyl hydrolyzed collagen
	Trisodium EDTA, T. HEDTA	Potassium oleoyl hydrolyzed collagen
	Usnic acid	Potassium undecylenoyl hydrolyzed collagen
35	Zinc PCA	Propyltrimonium hydrolyzed collagen
	Propellant	Propyltrimonium hydrolyzed soy protein
	Butane	Propyltrimonium hydrolyzed wheat protein
	Dimethyl ether	Protein hydrolysates
40	Hydrofluorocarbon 152a	Quaternium-79 hydrolyzed keratin
	Isobutane	Quaternium-79 hydrolyzed silk
	Propane	Rice peptide
	Protein	RNA
45	Albumen	Serum albumin, S. protein
	Atelocollagen	Silk powder
	Bletia hyacinthina extract	Sodium caseinate
	Chrysanthemum morifolium extract	Sodium cocoyl hydrolyzed collagen
	Cocodimonium hydroxypropyl hydrolyzed	Sodium cocoyl hydrolyzed soy protein
50	collagen	Sodium myristoyl hydrolyzed collagen
	Cocodimonium hydroxypropyl hydrolyzed keratin	Sodium oleoyl hydrolyzed collagen
	Cocodimonium hydroxypropyl hydrolyzed soy protein	Sodium stearoyl hydrolyzed collagen
		Sodium undecylenoyl hydrolyzed collagen

	Sodium/TEA-lauroyl hydrolyzed collagen	Magnesium sulfate hepta-hydrate
	Sodium/TEA-lauroyl hydrolyzed keratin	Octyldodecyl behenate, O. myristate
	Soluble collagen	bis-Octyldodecyl stearoyl dimer dilinoleate
	Soluble keratin	Octyldodecyl stearoyl stearate
5	Soluble wheat protein	Octyl hydroxystearate
	Soy (Glycine soja) protein	PEG-3 stearate
	Stearimonium hydroxypropyl hydrolyzed	PEG-4 oleamide
	collagen	PEG-6 capric/caprylic glycerides
10	Stearimonium hydroxyethyl hydrolyzed collagen	PEG-7 glyceryl cocoate
	TEA-cocoyl hydrolyzed collagen	PEG-16
	TEA-cocoyl hydrolyzed soy protein	Propylene glycol dipelargonate
	TEA-lauroyl collagen amino acids	
	TEA-lauroyl keratin amino acids	
	Trachea hydrolysate	
15	Triethonium hydrolyzed collagen ethosulfate	Resin
	Wheat (Triticum vulgare) germ extract, protein	Acrylates/hydroxyesters acrylates copolymer
	Wheat amino acids	Ethylene vinyl acetate
	Wheat peptide	Glyceryl abietate
	Wheat protein	Methacryloyl ethyl betaine/acrylates copolymer
20		4-Methyl benzenesulfonamide
		Polypropylene
		Polyquaternium-16, -44
		Sucrose benzoate
	Protein hydrolyzed	
	Ethyl ester of hydrolyzed silk	Sequestrant
	Hydrolyzed casein	Calcium acetate, C. phosphate, C. sulfate
	Hydrolyzed elastin	Encapsulation and entrapment systems
25	Hydrolyzed mushroom (Tricholoma matsutake) extract	Pentasodium triphosphate
	Hydrolyzed pea protein	Phosphoric acid
	hydrolyzed rice protein	Potassium phosphate, P. sodium tartrate
	Hydrolyzed serum protein	Silicon dioxide hydrate
30	Hydrolyzed silk	Sodium citrate, S. gluconate
	Hydrolyzed soy protein	Sorbitol
	Hydrolyzed vegetable protein	Tartaric acid
	Hydrolyzed wheat protein	Tripotassium EDTA
35	Hydroxypropyltrimonium hydrolyzed casein	Trisodium NTA
	Hydroxypropyltrimonium hydrolyzed silk	
	Hydroxypropyltrimonium hydrolyzed soy protein	
	Hydroxypropyltrimonium hydrolyzed wheat protein	
40		Silicone
	Reducing agent	Amino bispropyl dimethicone
	Dimyristyl thiodipropionate	Ammonium dimethicone copolyol sulfate
	Hydrolyzed zein, iodized	Amodimethicone
	Hydrolyzed zein, sulfurized	Behenoxy dimethicone
	Zinc formaldehyde sulfoxylate	C16-18 alkyl methicone
45		Cetyl dimethicone copolyol
	Refatting agent	Cyclomethicone
	Caprylic/capric triglyceride PEG-4 esters	Diisostearoyl adipate
	Cocamide MIPA	Diisostearoyl trimethylolpropane siloxy silicate
	Diisostearyl dimer dilinoleate	Dimethicone
50	Hydrogenated palm kernel glycerides	Dimethicone copolyol
	Isostearyl erucate, I. isostearate	Dimethicone copolyol almondate
	Lecithin	Dimethicone copolyol isostearate
	Liposomes	Dimethicone copolyol olivate, D.c. phthalate
		Dimethicone copolyolamine
		Dimethiconol fluoroalcohol dilinoleic acid
		Dimethiconol hydroxystearate, D. stearate

	Diphenyl dimethicone	Gelatin
	Disodium-PG-propylidemethicone thiosulfate	Ginseng hydroxypropyltrimonium chloride
	Isopropyl hydroxyburyramide dimethicone	butylene glycol
5	copoloyl	Glycolipids
	Methicone	Glycosphingolipids
	Octamethyl cyclotetrasiloxane	Gnetum amazonicum extract
	Phenyl methicone, P. trimethicone	Honey (Miel)
	Polyether Trisiloxane	Hydrolyzed carbolipoprotein
	Polymethylsilsesquioxane	Hydrolyzed elastin
10	Polysilicone-8	Hydrolyzed pea protein
	Quaternium-80	Hydrolyzed rice protein
	Silicone quaternium-1, -8	Hydrolyzed serum protein
	Sodium-PG-propyl thiosulfate dimethicone	Hydrolyzed silk
15	Stearoxymethicone/dimethicone copolymer	Hydrolyzed soy protein
	Trimethylsilylamodimethicone	Hydrolyzed vegetable protein
	Skin calming agent	Hydrolyzed wheat protein
	Cornflower (Centaurea cyanus) extract	Inga edulis extract
	Fennel (Foeniculum vulgare) extract	Kiwi (Actinidia chinensis) fruit extract
20	Fenugreek extract	Laminaria japonica extract
	Linden (Tilia cordata) extract	Lecithin
	Valerian (Valeriana officinalis) extract	Marsilea minuta extract
	Skin cleanser	Nettle (Urtica dioica) extract
25	Dog rose (Rosa canina) hips extract	Palmitamidodecanediol
	Papaya (Carica papaya) extract	Pearls (Margarita margarita)
	Peach (Prunus persica) extract	PEG-42 Ebiriko ceramides extract
	Rose (Rosa multiflora) extract	Phenyl trimethicone
	Willow (Salix alba) extract	Phytantriol
30	Skin conditioner	Polygonum multiflorum extract
	Artemisia apiacea extract	
	Astrocaryum tucuma extract	Potassium cocoyl hydrolyzed collagen
	Bactris gasipaes extract	Retinyl palmitate polypeptide
35	Biotin	Salvia miltiorrhiza extract
	Bishydroxyethyl biscetyl malonamide	Silt
	Bletia hyacinthina extract	Sodium cocoyl hydrolyzed collagen
	Borage (Borago officinalis) seed oil	Soluble transgenic elastin
	Borageamidopropyl phosphatidyl PG-dimonium	Steartrimonium hydroxyethyl hydrolyzed collagen
40	chloride	Stearyl methicone
	Carbocysteine	
	Catalpa kaempfera extract	Skin healing
	Coco phosphatidyl PG-dimonium chloride	Calendula officinalis extract
	Cocodimonium hydroxypropyl hydrolyzed keratin	Glycoproteins
45	Collagen amino acids	Hydrocotyl (Centella asiatica) extract
	Cyclomethicone	Oat (Avena sativa) extract
	Dimethicone, D. copolyol acetate	Sandalwood (Santalum album) extract
	Emblia officinalis extract	Spearmint (Mentha viridis) extract
	Equisetum arvense extract	
50	Ethyl ester of hydrolyzed animal protein	Skin lightening/whitening agent
	Evening primrose (Oenothera biennis) oil	Ascorbic acid polypeptide
	Fomes fomentarius extract	Bearberry (Arctostaphylos uva-ursi) extract
	Fomistopsis officinalis oil	Hydroquinone-beta-D-glucopyranoside
		Lemon (Citrus medica limonum) peel extract
		Pearls (Margarita margarita)

	Skin protectant	
5	Acetyl methionyl methylsilanol elastinate Allantoin, A. aluminum hydroxide Aloe barbadensis, A.b. extract Aluminum starch octenylsuccinate Anise (Pimpinella anisum) extract Arnica montana extract Artemisia apiacea extract Ascorbyl methylsilanol pectinate Astrocaryum tucuma extract Bacris gasipaes extract Betaglucan Bishydroxyethyl biscetyl malonamide Bletia hyacinthina extract C18-70 Isoparaffin Calendula amurensis extract Carboxymethyl chitin Carcinia cambogia extract Carrot (Daucus carota) extract Carrot (Daucus carota sativa) oil Catalpa kaempfera extract Chenopodium album extract Chitosan Chrysanthemum morifolium extract Collagen Corn poppy (Papaver rhoeas) extract Crataegus cuneata extract Crataegus monogyna extract Cypress (Cupressus sempervirens) extract 30 Dimethicone Dimethiconol fluoroalcohol dilinoleic acid Dimethiconol hydroxystearate, D. stearate Dimethylsilanol hyaluronate Echitea glauca extract Embryo extract Entada phaseoloides extract Equisetum arvense extract Euphorotium fortunei extract Euterpe precatoria extract 40 Fenugreek extract fomistopsis officinalis oil, F. pinicola extract Galla sinensis extract Gentian (Gentiana lutea) extract Gleditsia sinensis extract 45 Glyceryl ricinoleate Glycolipids Hierochloe odorata extract Hyaluronic acid Hydrogenated lecithin 50 Hydrolyzed lupine protein Hydrolyzed milk protein Hydrolyzed mushroom (Tricholoma matsutake) extract	Isodecyl salicylate Jojoba (Buxus chinensis) oil Lady's Thistle (Silybum marianum) extract Laminaria japonica extract Ligusticum jeholense extract Liposomes Magnolis spp. extract Mango kernel oil marsilea minuta extract Melaleuca hyperifolia extract Melaleuca uncinata extract Melaleuca wilsonii extract Methylsilanol tri PEG-8 glyceryl cocoate Oat (Avena sativa) meal Oyster (Ostrea) shell extract Palmitamidodecanediol Pearls (Margarita margarita) Pentahydrosqualene Perluorodecalin Perfluoropolymethylisopropyl ether Petrolatum PEG-8/SMDI copolymer PEG-42 Ebiriko ceramides extract Pfaffia spp. extract Phospholipids Plankton extract Polygonum multiflorum extract Pongamol PPG-12/SMDI Copolymer PPG-51/SMDI Copolymer Propyltrimonium hydrolyzed collagen Quinoa (Chenopodium quinoa) extract, oil Salvia miltiorrhiza extract Sambucus nigra extract Shark liver oil Shorea robusta extract Sodium chondroitin sulfate Soluble transgenic elastin Steartrimonium hydroxyethyl hydrolyzed collagen Sterculia planatifolia extract Superoxide dismutase Trachea hydrolysate Wheat (Triticum vulgare) germ extract, protein White nettle (Lamium album) extract Withania somniferum extract Xanthozylum bungeanum extract Zinc oxide
		Skin smoothing agent
55		Althea officinalis extract Coltsfoot (Tussilago farfara) leaf extract Comfrey (Symphytum officinale) leaf extract

	Plantain (<i>Plantago major</i>) extract	Dimethyl octynediol
	Sericin	Dioleth-8 phosphate
	<u>Skin softening</u>	Glycereth-7 -26
5	Clays (white, yellow, red, green, pink)	Glyceryl caprylate, G. dilaurate
	Cucumber (<i>Cucumis sativus</i>) extract	Glyceryl caprylate/caprate
	Kelp (<i>Macrocystis pyrifera</i>) extract	Isoeicosane
	Peach (<i>Prunus persica</i>) extract	Isopropanoiamine
10	Phenethyl dimethicone	Isosteareth-20
		Laneth-5, -15
		Laureth-23
	<u>Skin soothing</u>	Methylated cyclodextrin
	Calendula officinalis extract	Myreth-3
	Cherry bark extract	Myreth-3-octanoate
15	Cucumber (<i>Cucumis sativus</i>) extract	Nooxynol-10, -12, -14, -40, -50
	Garlic (<i>Allium sativum</i>) extract	Octoxynol-11, -40
	Hyssop (<i>Hyssopus officinalis</i>) extract	Oleoamphohydroxypropylsulfonate
	Jasmine (<i>Jasminum officinale</i>) extract	Oleth-3, -5, -10, -15, -20, -25, -50
	Kelp (<i>Macrocystis pyrifera</i>) extract	Oleth-20 phosphate
20	Mango kernel oil	PEG-4, -6, -8, -12, -16, -20, -32, -40
	Meadowsweet (<i>Spiraea ulmaria</i>) extract	PEG-4 dilaurate
	Quince (<i>Pyrus cydonia</i>) seed extract	PEG-6 capric/caprylic glycerides
	Slippery elm extract	PEG-6 methyl ether
	Valerian (<i>Valeriana officinalis</i>) extract	PEG-8 distearate
25	Willow (<i>Salix alba</i>) extract	PEG-12 laurate
	Witch hazel (<i>Hamamelis virginiana</i>) extract	PEG-15 castor oil
		PEG-18 stearate
	<u>Solubilizer</u>	PEG-20 glyceryl isostearate, P.g. laurate
30	Acetyl monoethanolamine	PEG-20 glyceryl oleate, P.g. stearate
	Almond oil PEG-6 esters	PEG-20 methyl glucose sesquistearate
	2-Aminobutanol	PEG-20 sorbitan isostearate
	Aminoethyl propanediol	PEG-20 sorbitan triisostearate
	Aminomethyl propanediol, A. propanol	PEG-24 hydrogenated lanolin
35	Apricot kernel oil PEG-6 esters	PEG-25 castor oil
	Benzalkonium chloride	PEG-25 hydrogenated castor oil
	Butoxydiglycol	PEG-30 castor oil
	Butyl glucoside	PEG-30 glyceryl cocoate
	Butylene glycol	PEG-30 glyceryl isostearate
40	Butyloctanol	PEG-30 glyceryl laurate
	Capric-caprylic mono-diglyceride	PEG-30 glyceryl oleate
	Capryl caprylylglucoside	PEG-30 glyceryl stearate
	Caprylic/capric triglyceride	PEG-33 castor oil
	Caprylic/capric/linoleic triglyceride	PEG-35 castor oil
	Caprylic/capric/oleic triglycerides	PEG-36 castor oil
45	Caprylyl/capryl glucoside	PEG-40 castor oil
	Ceteareth-20	PEG-40 glyceryl laurate, P.g. stearate
	Ceteth-10	PEG-40 hydrogenated castor oil
	Cetyl PPG-2 isodeceth-7 carboxylate	PEG-40 hydrogenated castor oil PCA isostearate
	Cholesterol	PEG-40 sorbitan diisostearate
50	Corn oil PEG-6 esters	PEG-45 palm kernel glycerides
	Decaglycerol monodioleate	PEG-48 hydrogenated castor oil
	Diethanolamine	PEG-50 castor oil
	Dilaureth-10 phosphate	PEG-50 hydrogenated castor oil
		PEG-60 almond glycerides

	PEG-60 castor oil	Butyl acetate
	PEG-60 corn glycerides	n-Butyl alcohol
	PEG-60 glyceryl isostearate, P.g. stearate	Butyl myristate, B. stearate
5	PEG-60 hydrogenated castor oil	Butylene glycol
	PEG-60 lanolin	C9-11 isoparaffin
	PEG-70 mango glycerides	C10-11 isoparaffin
	PEG-75 lanolin	C10-13 isoparaffin
	PEG-75 shea butter glycerides	Caprylic alcohol
10	PEG-75 shorea butter glycerides	Castor (<i>Ricinus communis</i>) oil
	PEG-80 hydrogenated castor oil	Cetearyl octanoate
	PEG-80 jojoba acid/alcohol	Cetyl stearyl octanoate
	PEG-80 sorbitan laurate	Chlorobutanol
	PEG-100 castor oil	Decyl alcohol
15	PEG-100 hydrogenated castor oil	Diethylene glycol
	PEG-120 jojoba acid/alcohol	Diethylene glycol dibenzoate
	PEG-200 trihydroxystearin	Diethyl sebacate
	Poloxamer 407	Diisocetyl adipate
	Polyglyceryl-3 oleate	Diisopropyl adipate, D. sebacate
20	Polyglyceryl-6 dioleate	Dimethyl phthalate
	Polyglyceryl-10 decaoleate, P. tetraoleate	Dipropylene glycol
	Polysorbate 20, 60, 80	Dipropylene glycol dibenzoate
	PPG-2-isodeceth-4, -6, -9, -12	Ethoxydiglycol
	PPG-3 isosteareth-9	Ethyl acetate, E. lactate
25	PPG-3 isoceteth-20 acetate	Ethyl myristate, E. oleate
	PPG-5-ceteth-10 phosphate	2-Ethylhexyl isostearate
	PPG-5-ceteth-20	Glycerin
	PPG-6-decyltetradeceth-12, -20, -30	Glycofural
	PPG-12-PEG-65 lanolin oil	Heptane
30	PPG-15 stearyl ether	Hexyl alcohol
	PPG-18 butyl ether	Hexylene glycol
	PPG-24 butyl ether	Isobutyl stearate
	PPG-26-buteth-26	Isocetyl salicylate
	PPG-33 butyl ether	Isodecyl benzoate, I. isononanoate
	PPG-33-buteth-45	Isodecyl octanoate, I. oleate
35	PPG-40-PEG-60 lanolin oil	Isododecane
	PPG-50 cetyl ether	Isoeicosane
	Propylene glycol dicaprylate,	Isohexadecane
	dicaprylate/dicaprate	Isopropyl alcohol, I. myristate
	Ricinoleamide DEA	Isostearyl stearoyl stearate
40	Ricinoleth-40	Laureth-2 acetate
	Sodium alpha olefin sulfonate	Methoxydiglycol
	Sodium lauryl sulfate	Methoxyisopropanol
	Sodium methylnaphthalenesulfonate	Methyl alcohol
	Triethanolamine	Methyl propanediol
45	Trioctanoin	Methylene chloride
	Tromethamine	MEK
	Solvent	MBK
	Acetic acid	Morpholine
50	Acetone	Octyl benzoate, O. isononanoate
	Alcohol, A. denat	Octyl laurate, O. palmitate
	Benzophenone	Octyldodecyl lactate
	Butoxydiglycol	Olive oil PEG-6 esters
		Peanut oil PEG-6 esters

	Pentane	Hydroxyoctacosanyl hydroxystearate
	Petroleum distillates	Karaya (<i>Stericilia urens</i>) gum
	PEG-6 methyl ether	Laureth-3
	PEG-12	Maltitol
5	PEG-20 hydrogenated castor oil	Methylated cyclodextrin
	PEG-33 castor oil	Oleamide
	PEG-50 glyceryl cocoate	PEG-40 stearate
	Polyglyceryl-2 dioleate	PEG-40/dodecyl glycol copolymer
	Polyglyceryl-3 diisostearate	Perfluoropolymethylisopropyl ether
10	Polyoxyethylene glycol dibenzoate	Polyethylene paste
	Polypropylene glycol dibenzoate	PPG-5 lanolin wax
	PPG-2 myristyl ether propionate	PPG-7-buteth-10
	PPG-3	PPG-10 cetyl ether phosphate
	PPG-20 lanolin alcohol ether	Propylene carbonate, P. glycol alginate
15	Propyl alcohol	PVM/MA decadiene crosspolymer
	Propylene carbonate	Sodium acrylates/vinyl isodecanoate crosspolymer
	Propylene glycol	Sodium carbomer
	Propylene glycol dibenzoate	Sorbitan laurate
	Propylene glycol methyl ether	Stearic hydrazide
20	Propylene glycol myristate	2,2',4,4'-Tetrahydroxybenzophenone
	Pyridine	Tricaprin
	Sesame (<i>Sesamum indicum</i>) oil	Tricaprylin
	Stearyl heptanoate	Trilaurin
	Toluene	Trimyristin
25	Xylene	Tripalmitin
		Tristearin
	SPF booster	
	Borojoa sorbilis extract	Stimulant
	Isonexadecyl salicylate	Capsicum frutescens extract
30	Styrene/acrylates copolymer	Eleuthero ginseng (<i>Acanthopanax senticosus</i>) extract
	Titanium dioxide	Guarana (<i>Paullinia cupana</i>) extract
	Yeast (<i>Saccharomyces cerevisiae</i>) extract (Faex)	Lactococcus hydrolysate
		Methylsilanol elastinate
	Stabilizer	Methylsilanol hydroxyproline aspartate
35	Acrylates-VA crosspolymer	TEA-hydroiodide
	Acrylates/ceteth-20 methacrylates copolymer	Tocopheryl nicotinate
	Acrylates/stearth-20 methacrylate copolymer	Urocanic acid
	Acrylates/vinyl isodecanoate crosspolymer	Yeast (<i>Saccharomyces cerevisiae</i>) extract (Faex)
	Alkyldimethylamine oxide	Zedoary (<i>Curcuma zedoraria</i>) oil
40	C10-polycarbamyl polyglycol ester	Zinc DNA
	Calcium alginate	
	Cocamidopropyl dimethylamine lactate	Sunscreen
	Cocamine oxide	Basil (<i>Basilicum santum</i>) oil extract
	Colloidal silica sols	Basil (<i>Ocimum basilicum</i>) extract
45	Cyclodextrin	Benzophenone-3 -4
	Disodium EDTA	3-Benzylidene camphor
	Gellan gum	Borojoa sorbilis extract
	Glyceryl diisostearate, G. stearate SE	C12-15 alkyl benzoate
	Glyceryl mono-di-tri-caprylate	Coffee (<i>Coffea arabica</i>) bean extract
50	Hydrogenated coco-glycerides	Ethyl salicylate
	Hydrogenated C12-18 triglycerides	Glyceryl PABA
	Hydrogenated tallow glycerides	Homosalate
	Hydrolyzed oat flour	

	Hydroquinone-beta-D-glucopyranoside	Cocamidopropyl betaine, potassium salt
	Isoamyl p-methoxycinnamate	Cocamidopropyl betaine ammonium salt
	Isopropylbenzyl salicylate	Cocamidopropyl hydroxy sultaine
5	Job's tears (<i>Coix lacryma-jobi</i>) extract	Cocamidopropyl hydroxy sultaine, ammonium salt
	Menthyl anthranilate	Cocamidopropyl hydroxy sultaine, potassium salt
	Octyl dimethyl PABA, O. methoxycinnamate	Cocamidopropylamine oxide
	Octyl salicylate, O. triazone	Coceth-7 carboxylic acid
	Oryzanol	Coco-glucoside
10	Pansy (<i>Viola tricolor</i>) extract	Cocoamphodiacetate lauryl-laureth sulfate
	PEG-25 PABA	Cocoamphodiacetate lauryl sulfate
	Phenylbenzimidazole sulfonic acid	Cocoamphodiacetate trideceth sulfate
	Rice (<i>Oryza sativa</i>) bran oil	Coco phosphatidyl PG-dimonium chloride
	TEA-salicylate	N-Cocoyl-(3-amidopropyl)-N,N-dimethyl-N-ethyl ammonium ethyl sulfate
15	Titanium dioxide	Cocoyl glutamic acid
	Sunscreen UVB	Cocoyl hydrolyzed soy protein
	Benzophenone-5	Cocoyl hydroxyethyl imidazoline
	Eclipta alba extract	C11-15 pareth-9, -12, -20, -30, -40
20	PEG-25 PABA	C12-13 pareth sulfate
	Steareth-100	C12-13 pareth-5 carboxylic acid
	Tridecyl salicylate	C12-15 pareth-12
	Surfactant	C14-15 pareth-8 carboxylic acid
25	Linoleamide DEA	DEA-oleth-5-phosphate
	PEG-20 almond glycerides	DEA-oleth-20-phosphate
	PEG-60 lanolin	Deceth-3, -6, -8
	PEG-75 lanolin	Decyltetradeceth-25
		Diceteareth-10 phosphoric acid
30	Alkyl dimethyl betaine	Dimethicone copolyol
	Alkyldimethylamine oxide	Dimethicone copolyol almondate, D.c. isostearate
	Ammonium cocoyl sarcosinate	Dimethicone copolyol laurate, D.c. olivate
	Ammonium C12-15 alkyl sulfate	Dimethicone copolyol phthalate
	Ammonium dimethicone copolyol sulfate	Dimethicone copolyolamine
35	Ammonium laureth-5 sulfate	Dimethicone propyl PG-betaine
	Ammonium laureth-12 sulfate	Diocetyl dodeceth-2 lauroyl glutamate
	Ammonium laureth sulfate	Diocetyl dodeceth-5 lauroyl glutamate
	Ammonium lauroyl sarcosinate	Diocetyl dodecyl lauroyl glutamate
40	Ammonium lauryl sulfate, A.I. sulfosuccinate	Disodium capryloamphodiacetate
	Ammonium myreth sulfate	Disodium cocoamphodiacetate
	Ammonium nonoxynol 4 sulfate	Disodium hydrogenated tallow glutamate
	Azelamide MEA	Disodium laneth-5 sulfosuccinate
	C20-40 alcohol ethoxylate	Disodium lauramido MEA-sulfosuccinate
	C30-50 alcohol ethoxylate	Disodium laureth sulfosuccinate
45	C40-60 alcohol ethoxylate	Disodium oleamido MIPA-sulfosuccinate
	Calcium dodecylbenzene sulfonate	Disodium oleamido PEG-2 sulfosuccinate
	Calcium laurate	Disodium oleth-3 sulfosuccinate
	Ceteareth-2 phosphate	Disodium ricinoleamido MEA-sulfosuccinate
	Ceteareth-5 phosphate	Disodium tallamido MEA-sulfosuccinate
50	Ceteareth-10 phosphate	Disteareth-2 lauroyl glutamate
	Cetoleth-25	Disteareth-5 lauroyl glutamate
	Cetyl betaine, C. phosphate	Ethoxylated fatty alcohol
	Cocamide MEA ethoxylate	Ethoxylated glycerol sorbitan saturated fatty acid ester

	Ethoxylated glycerol sorbitan unsaturated fatty acid ester	Polysiloxane-polyether copolymer
	Glycereth-25 PCA isostearate	Potassium cocoyl glycinate
5	Glycereth-26 phosphate	Potassium cocoyl hydrolyzed collagen
	glyceryl hydroxystearate	Potassium C9-15 phosphate ester
	Hydrogenated tallowoyl glutamic acid	Potassium lauroyl hydrolyzed collagen
	isopropyl hydroxybutyramide dimethicone copolyol	Potassium lauryl sulfate
10	Lauramidopropyl betain	Potassium myristoyl hydrolyzed collagen
	Laureth-1, -2, -3, -4, -7, -12, -16	Potassium oleoyl hydrolyzed collagen
	Laureth-3 carboxylic acid, L. phosphate	Potassium palmitate
	Laureth-5 carboxylic acid	Potassium undecylenoyl hydrolyzed collagen
	Laureth-11 carboxylic acid	PPG-2-isodeceth-4, -6, -9, -12
	Lauroyl sarcosine	PPG-6 C12-18 pareth-11
15	Lauryl dimethylamine cyclocarboxypropylolate	Protein hydrolysates
	Laryl hydroxyethyl imidazoline	Quaternium-80
	Linoleamide DEA	Quillaja saponaria extract
	Magnesium laureth-8 sulfate	Raffinose laurate, R. myristate, R. oleate
20	Meroxapol 105, 171, 172	Raffinose palmitate, R. stearate
	MEA-lauryl sulfate	Ricinoleamidopropyl betain
	Mixed isopropanolamines myristate	Silicone quaternium-1, -8, -9
	Myreth-7	Sodium alpha olefin sulfonate
	Myristoyl sarcosine	Sodium cocoamphoacetate
	Myristyl alcohol	Sodium cocoyl hydrolyzed wheat protein
25	Nonoxynol-7, -9, -13, -15	Sodium cocoyl isethionate
	Nonoxynol-10 carboxylic acid	Sodium C12-13 sulfate
	Octoxynol-10, -12	Sodium C12-14 pareth-2 sulfate
	Octyldodeceth-10, -16	Sodium C12-15 pareth-3 sulfonate
	Oleoyl sarcosine	Sodium C12-15 pareth-7 carboxylate
30	Oleth-2 phosphate	Sodium C12-15 pareth-7 sulfonate
	Oleth-5 phosphate	Sodium C12-15 pareth-8 carboxylate
	Oleyl betaine	Sodium C12-15 pareth-15 sulfonate
	Oleyl hydroxyethyl imidazoline	Sodium C12-18 alkyl sulfate
	Palmitamine oxide	Sodium C13-17 alkane sulfonate
35	Palmityl betaine	Sodium C14-16 olefin sulfonate
	PCA ethyl cocoyl arginate	Sodium cetearyl sulfate
	PEG-7 hydrogenated castor oil	Sodium cetyl oleyl sulfate
	PEG-8 caprylic/capric glycerides	Sodium coco-tallow sulfate
	PEG-8 laurate	Sodium cocoyl glutamate
40	PEG-8 stearate	Sodium cocoyl hydrolyzed collagen
	PEG-15 glyceryl stearate	Sodium cocoyl hydrolyzed soy protein
	PEG-25 glyceryl isostearate	Sodium cocoyl sarcosinate
	PEG-27 lanolin	Sodium dimethicone copolyol acetyl methyltaurate
	PEG-30 lanolin	Sodium hydrogenated tallow glutamate
45	PEG-40 castor oil	Sodium isodecyl sulfate
	PEG-40 glyceryl stearate	Sodium laureth-5 carboxylate
	PEG-40 jojoba oil, P. lanolin	Sodium laureth-11 carboxylate
	PEG-60 glyceryl isostearate, P.g. stearate	Sodium laureth-13-carboxylate
	PEG-80 jojoba oil, P. sorbitan laurate	Sodium laureth sulfate
50	PEG-120 jojoba oil	Sodium lauroamphoacetate
	Pentasodium triphosphate	Sodium lauroyl glutamate
	Poloxamer 101, 122	Sodium lauroyl hydrolyzed collagen
	Polyglyceryl-2 dioleate	Sodium lauroyl sarcosinate, S.I. taurate
		Sodium magnesium laureth sulfate

5	Sodium methyl cocoyl taurate Sodium methyl oleoyl taurate Sodium myristoyl glutamate Sodium myristoyl hydrolyzed collagen Sodium myristoyl sarcosinate Sodium myristyl sulfate Sodium nonoxynol-6 phosphate Sodium octoxynol-2 ethane sulfonate Sodium octyl sulfate	Hydroxypropylcellulose Isobutylene/MA copolymer Magnesium aluminum silicate Methylcellulose Pentasodium triphosphate Polyethylene, P. micronized Propylene glycol alginate Quaternium-18 bentonite Quaternium-18 hectorite Sodium magnesium silicate Sodium polynaphthalenesulfonate Stearalkonium bentonite, S. hectorite Steareth-10 allyl ether/acrylates copolymer _____ (Astragalus gummifer) gum
10	Sodium oleoyl hydrolyzed collagen Sodium stearoyl hydrolyzed collagen Sodium trideceth sulfate	_____ ribehenin _____ rihydroxystearin _____ omethamine magnesium aluminum silicate _____ anthan gum
15	Sodium undecylenoyl hydrolyzed collagen Sodium/TEA-lauroyl hydrolyzed collagen Sodium/TEA-lauroyl hydrolyzed keratin Sorbitan isostearate	<u>Sweetener</u> _____ saccharin
20	Stearoyl sarcosine Sulfated castor oil TEA-cocoyl glutamate TEA-cocoyl hydrolyzed collagen TEA-cocoyl hydrolyzed soy protein TEA-C12-15 alkyl sulfate	_____ acid _____ acid _____ , ammoniated _____ corn starch
25	TEA-hydrogenated tallow glutamate TEA-lauroyl glutamate TEA-lauroyl keratin amino acids TEA-lauroyl sarcosinate TEA-lauryl sulfate	_____ saccharin
30	TEA-myristoyl hydrolyzed collagen Tocophereth-5 -10 -18 -20 -30 -50 -70 Trideceth-7 carboxylic acid Trideceth-9	<u>accelerator</u> tyrosine Carrot (Daucus carota) extract
35	Trideceth-19-carboxylic acid Tridecyl ethoxylate Triethanolamine C10-14 sulfate Trilauryl phosphate Wheat germamidopropyl betaine Yucca vera extract	_____ acetyl tyrosinate methylsilanol _____ droxyacetone _____ malyl tyrosinate _____ alba extract in white emulsion _____ tyrosinate
40	<u>Suspending agent</u> Acrylates/ceteth-20 methacrylates copolymer Acrylates/steareth-20 methacrylate copolymer Algin Bentonite	<u>ckener</u> -VA crosspolimer /C10-C30 alkyl acrylate crosspolymer /ceteth-20 itaconate copolymer /ceteth-20 methacrylates copolymer /steareth-20 itaconate copolymer /steareth-20 methacrylate copolymer /steareth-50 acrylate copolymer /vinyl isodecanoate crosspolymer acid/acrylonitrogen copolymer
45	C10 polycarbamyl polyglycol ester Calcium alginate Carbomer, C. 934 Carrageenan (Chondrus crispus) Cellulose gum	
50	Cetyl hydroxyethylcellulose Dihydrogenated tallow phthalic acid amide Distearyl phthalic acid amide Guar (Cyanopsis tetragonoloba) gum Hectorite	

	/magnesium hydroxide stearate	Hydrogenated rapeseed oil
	acrylates/acrylonitrogens copolymer	Hydrogenated starch hydrolysate
	alginate	Hydrogenated talloweth-60 myristyl glycol
5	alcohol	Hydrolyzed oat flour
	acid	Hydrolyzed transgenic collagen
	alcohol, B. behenate	Hydroxyethylcellulose
	nite	
10	olycarbamyl polyglycol ester	
	5 alcohols	
	6 alcohols	
	6 acid	
	Calcium alginate	
	Calcium carrageenan	
15	Caprylic alcohol	
	Carbomer	
	Carboxymethyl hydroxyethylcellulose	
	Carrageenan (<i>Chondrus crispus</i>)	
20	Cellulose, C. gum	
	Cetearyl alcohol, C. behenate	
	Cetearyl octanoate, C. stearate	
	Cetostearyl stearate	
	Cetyl alcohol	
	Cetyl hydroxyethylcellulose	
25	Cetyl myristate, C. palmitate	
	Cocamide	
	Cocamide MEA, C. MIPA	
	Cocamidopropylamine oxide	
	Coco-betaine	
30	Coco-rapeseedate	
	Coco/oleamidopropyl betaine	
	Cocoyl amido hydroxy sulfo betaine	
	Cocoyl monoethanolamide ethoxylate	
	Colloidal silica sois	
35	DEA-hydrolyzed lecithin	
	DEA-linoleate	
	DEA-oleth-3 phosphate	
	DEA oleth-10 phosphate	
40	Decyl alcohol	
	Dextran	
	Dextrin	
	Dilaureth-10 phosphate	
	Dioleth-8 phosphate	
	DMHF	
45	Ethoxylated fatty alcohol	
	Gellan gum	
	Glyceryl behenate, G. stearate	
	Glyceryl polymethacrylate	
	Guar (<i>Cyanopsis tetragonoloba</i>) gum	
50	Guar hydroxypropyltrimonium chloride	
	Hectorite	
	Hexyl alcohol	
	Hydrated silica	

5	Hydroxypropyl chitosan Hydroxypropyl guar Hydroxypropyl methylcellulose Hydroxypropylcellulose Isoceteth-10 Isostearamide DEA Isostearamidopropylamine oxide Isostearoamphopropionate Jojoba wax	PEG-100 stearate PEG-120 methyl glucose dioleate PEG-150 distearate PEG-150 pentaerythrityl tetraestearate PEG-160M PEG-200 glyceryl stearate PEG-200 glyceryl tallowate Pentaerythrityl tetrabehenate Pentaerythrityl tetraestearate Poloxamer 105, 124, 185, 237, 238, 338, 407 Polyacrylic acid Polysorbate 20 Potassium alginate, P. chloride Potassium oleate, P. stearate PPG-5-ceteth-10 phosphate Propylene glycol stearate PVM/MA decadiene crosspolymer PVP Quaternium-18 bentonite Quaternium-18 hectorite Rapeseed oil, ethoxylated high erucic acid Ricinoleamide MEA Sesamide DEA Sodium acrylates/vinyl isodecanoate crosspolymer Sodium carbomer, S. carrageenan Sodium ceteth-13-carboxylate Sodium chloride Sodium magnesium silicate, S. stearate Sorbitan sesquioleate, S. tristearate Soyamide DEA Soyamidopropyl betaine Starch polyacrylonitrile copolymer-potassium salt Starch polyacrylonitrile copolymer-sodium salt Stearalkonium bentonite, S. hectorite Stearamide Stearamide DEA, S. MEA, S. MEA-stearate Stearamidopropyl dimethylamine lactate Stearamine oxide Steareth-10 allyl ether/acrylates copolymer Stearic acid Stearyl alcohol Synthetic beeswax Tallowamide MEA TEA-acrylates/acrylonitrogen copolymer Tragacanth (<i>Astragalus gummifer</i>) gum Tribehenin Trihydroxystearin Tromethamine magnesium aluminum silicate Wheat germamide DEA Wheat germamidopropyl betain Xanthan gum
10	Karaya (<i>Stericulia urens</i>) gum L_____ DEA, L. MEA, L. MIPA L_____ midopropyl betaine Laureth-10 L_____ -linoleic DEA L_____ -linoleoyl diethanolamide L_____ -myristoyl diethanolamide L_____ alcohol, L. betaine L_____ amide DEA, L. MEA L_____ eic acid L_____ mic acid L_____ bean (<i>Ceratonia siliqua</i>) gum Magnesium aluminum silicate MDM hydantoin	
15	Methylcellulose Montmorillonite Myristamide DEA, M. MEA Myristamine oxide Myristyl alcohol Octacosanyl stearate	
20	Oleamide, O. DEA, O. MEA Palmitamide MEA Pectin PEG-2 laurate PEG-3 distearate, P. lauramide PEG-3 lauramine oxide PEG-4 diisostearate, P. oleamide PEG-5M PEG-6 beeswax PEG-7 hydrogenated castor oil	
25		
30		
35		
40	PEG-8 PEG-8 dioleate, P. distearate PEG-8 stearate PEG-9M PEG-12 beeswax PEG-18 glyceryl oleate/cocoate PEG-23M PEG-28 glyceryl tallowate PEG-40 jojoba oil PEG-45M PEG-50 tallow amide PEG-55 propylene glycol oleate PEG-75 stearate PEG-90M	
45		
50		

Thixotrope

	Bentonite	<u>Vegetable oil</u>
	Hectorite	Apricot (<i>Prunus armeniaca</i>) kernel oil
	Sodium magnesium silicate	Avocado (<i>Persea gratissima</i>) oil
	Stearalkonium bentonite	Baobab oil
5		<i>Calendula officinalis</i> oil
	Toner	<i>Chaulmoogra (Taraktojenos kurzii)</i> oil
	<i>Aithea officinalis</i> extract	Coconut (<i>Cocos nucifera</i>) oil
	<i>Clover (Trifolium pratense)</i> extract	Corn (<i>Zea mays</i>) oil
	<i>Dog rose (Rosa canina)</i> hips extract	Cottonseed (<i>Gossyplum</i>) oil
10	<i>Ginseng (Panax ginseng)</i> extract	Gold of pleasure oil
	<i>Horsetail</i> extract	Grape (<i>Vitis vinifera</i>) seed oil
	<i>Lemon bioflauonoids</i> extract	Hazel (<i>Corylus avellana</i>) nut oil
	<i>Meadowsweet (Spiraea ulmaria)</i> extract	Hybrid sunflower (<i>Helianthus annuus</i>) oil
	<i>Nettle (Urtica dioica)</i> extract	Hydrogenated coconut oil
15	<i>Rose (Rosa multiflora)</i> extract	Hydrogenated cottonseed oil
	<i>Rosemary (Rosmarinus officinalis)</i> extract	Hydrogenated vegetable oil
	UVA absorber	<i>Jojoba (Buxus chinensis)</i> oil
	<i>Benzophenone-1, -2, -3, -4, -6, -8, -9, -11, -12</i>	<i>Kukui (Aleurites molaccana)</i> nut oil
20	<i>Butyl methoxydibenzoylmethane</i>	Macadamia <i>ternifolia</i> nut oil
	<i>Corallina officinalis</i>	Meadowfoam (<i>Limnanthes alba</i>) seed oil
	<i>Isopropyl dibenzoylmethane</i>	Mexican poppy oil
	<i>Methyl anthranilate</i>	<i>Palm (Elaeis guineensis)</i> kernel oil
	<i>2,2',4,4'-Tetrahydroxybenzophenone</i>	Partially hydrogenated soybean oil
25	<i>Titanium dioxide</i>	<i>Peach (Prunus persica)</i> kernel oil
	<i>Zinc oxide</i>	<i>Peanut (Arachis hypogaea)</i> oil
	UVB absorber	<i>Pecan (Carya illinoensis)</i> oil
	<i>Argania spinosa</i> oil	<i>Pumpkin (Cucurbita pepo)</i> seed oil
30	<i>Benzophenone-1 -2 -3 -4 -6 -9 -11</i>	<i>Quinoa (Chenopodium quinoa)</i> oil
	<i>Corallina officinalis</i>	<i>Rapeseed (Brassica capestris)</i> oil
	<i>DEA-methoxycinnamate</i>	<i>Rice (Oryza sativa)</i> bran oil
	<i>Drometrizole</i>	<i>Safflower (Carthamus tinctorius)</i> oil
	<i>Ethyl dihydroxypropyl PABA</i>	<i>Seabuckthorn</i> oil
35	<i>Etocrylene</i>	<i>Sesame (Sesamum indicum)</i> oil
	<i>homosalate</i>	<i>Sisymbrium irio</i> oil
	<i>Isoamyl p-methoxycinnamate</i>	<i>Soybean (Glycine soja)</i> oil
	<i>Isopropyl methoxycinnamate</i>	<i>Sunflower (Helianthus annuus)</i> seed oil
	<i>Isopropylbenzyl salicylate</i>	<i>Walnut (Juglans regia)</i> oil
40	<i>4-Methylbenzylidene camphor</i>	<i>Wheat (Triticum vulgare)</i> germ oil
	<i>Octocrylene</i>	<i>Wild borage</i> oil
	<i>Octrizole</i>	
	<i>Octyl dimethyl PABA</i>	Vitamin
	<i>Octyl methoxycinnamate</i>	<i>Aesculus chinensis</i> extract
45	<i>Octyl salicylate, O. triazine</i>	<i>Ascorbic acid</i>
	<i>PABA</i>	<i>Ascorbic acid polypeptide</i>
	<i>PEG-25 PABA</i>	<i>Ascorbyl palmitate</i>
	<i>Phenylbenzimidazole sulfonic acid</i>	<i>Biotin</i>
	<i>Shea butter, ethoxylated</i>	<i>Calcium pantothenate</i>
50	<i>TEA-salicylate</i>	<i>Cholecalciferol</i>
	<i>Titanium dioxide</i>	<i>Cyanocobalamin</i>
	<i>TriPABA panthenol</i>	<i>Eclipta alba</i> extract
	<i>Zinc oxide</i>	<i>Emblica officinalis</i> extract
		<i>Equisetum arvense</i> extract
		<i>Ergocalciferol</i>

	Esculin	Spermaceti
	Ethyl linoleate	Stearoxymethicone/dimethicone copolymer
	Folic acid	Stearoxytrimethylsilane
5	Laminaria japonica extract	Synthetic candelilla wax
	Marsilea minuta extract	Synthetic carnauba
	Melaleuca bracteata extract	
	Menadione	
	Nasturtium sinensis extract	<u>Wetting agent</u>
10	Nelumbium speciosum extract	Benzalkonium chloride
	Niacin	Benzethonium chloride
	Niacinamide, N. ascorbate	Cetalkonium chloride
	Nicotinamide	Ceteareth-20
	Nicotinic acid	Ceteth-20
15	Ocimum basilicum extract	Cetyl pyridinium chloride
	Panthenyl triacetate	Cocoamphodipropionic acid
	Pantothenic acid	Decaglycerol monodioleate
	Phytanadione	Deceth-9
	Pyridoxine HCl	Dihydroabietyl methacrylate
20	Retinol	Dimethicone copolyol methyl ether
	Retinyl acetate, R. palmitate	Dimethicone copolyol phthalate
	Retinyl palmitate polypeptide	Diethyl sodium sulfosuccinate
	Retinyl propionate	Ethyl hydroxymethyl oleyl oxazoline
	Riboflavin tetraacetate	Hydroxylated milk glycerides
25	Sodium ascorbate	Isolaureth-6
	Thiamine HCL	Lanolin acid
	Tocopherol	Lauryl pyrrolidone
	Tocopheryl acetate, T. succinate	Lecithin
	<u>Wax</u>	Methyl hydrogenated rosinate
30	Bayberry (Myrica cerifera) wax	Methyl rosinate
	Behenoxy dimethicone	Nonyl nonoxynol-5
	C16-18 alkyl methicone	Octoxynol-8, 70
	Candelilla (Euphorbia cerifera) wax	Oleth-15
	Carnauba (Copernicia cerifera) wax	Oleth-20 phosphate
35	Ceresin	PEG-9 castor oil
	Cetyl dimethicone, C. isoctanoate	PEG-15 castor oil
	Dialkyldimethylpolysiloxane	PEG-20 glyceryl stearate
	Dimethiconol hydroxystearate	PEG-20 sorbitan triisostearate
	Dimethiconol stearate	PEG-45 palm kernel glycerides
40	Hydrogenated castor oil	PEG-60 almond glycerides, P. corn glycerides
	Hydrogenated cottonseed oil	PEG-60 shea butter glycerides
	Hydrogenated jojoba oil, H.j. wax	PEG-70 mango glycerides
	Hydrogenated palm kernel oil	PEG-75 shea butter glycerides
	Hydrogenated rapeseed oil	PEG-80 sorbitan laurate
45	Hydrogenated rice bran wax	Poloxamer 123, 181, 182, 184, 235, 334
	hydrogenated vegetable oil	Polyether trisiloxane
	Isooctadecyl isononanoate	Polyglyceryl-3 oleate
	Japan (Rhus succedanea) wax	Polyglyceryl-6 dioleate
	Jojoba esters	Polyglyceryl-10 tetraoleate
50	Montan (Montan cera) wax	Polysorbate 60, 80
	Ourycury wax	PPG-2-isodeceth-4, -6, -9, -12
	Ozokerite	PPG-10 lanolin alcohol ether
	Polyglyceryl-3 beeswax	Propylene glycol
		Sodium butoxyethoxy acetate
		Sodium capryloamphohydroxypropylsulfonate

Sodium decyl diphenyl ether sulfonate
Sodium dodecyldiphenyl ether sulfonate
Sodium lauryl sulfate
Sulfated castor oil
5 Triisocetyl citrate
Triisostearin PEG-6 esters
Yucca vera extract

Claims:

1. A cosmetic composition comprising:
a cosmetically acceptable carrier, comprising a reverse thermal viscosifying polymer network comprising at least one poloxamer component randomly bonded to at least one poly(acrylic acid) component said polymer network capable of aggregation in response to a change in temperature; and
a cosmetically active agent which imparts a preselected cosmetic effect, said carrier and said agent disposed within an aqueous-based medium.
- 10 2. A cosmetic composition for topical application, comprising:
a cosmetically acceptable carrier, comprising a reverse thermal viscosifying polymer network comprising at least one poloxamer component capable of aggregation in response to a change in temperature randomly bonded to at least one poly(acrylic acid) component; and
15 a cosmetically active agent selected to treat imperfections or disorders of the skin, said carrier and said agent disposed within an aqueous-based medium.
- 20 3. The cosmetic composition of claim 1, wherein the cosmetic composition is a shampoo and the cosmetically active agent comprises a cleansing surfactant.
4. The cosmetic composition of claim 1, wherein the cosmetic composition is a moisturizer and the cosmetically active agent comprises a moisturizer.
- 25 5. The cosmetic composition of claim 1, wherein the cosmetic composition is a sunscreen and the cosmetically active agent comprises a UV-absorbing agent.
6. The cosmetic composition of claim 1, wherein the cosmetic composition is an acne cream and the cosmetically active agent comprises an antiacne agent.

7. The cosmetic composition of claim 1, wherein the cosmetic composition is a hair straightener and the cosmetic agent comprises a base for increasing the pH.

8. The cosmetic composition of claim 1, wherein the cosmetic composition 5 is a sunless tanning lotion and the cosmetically active agent comprises skin tinting agent.

9. The cosmetic composition of claim 1, wherein the cosmetic composition is an antiperspirant and the cosmetically active agent comprises aluminum 10 chlorhydrate.

10. The cosmetic composition of claim 1, wherein the cosmetic composition is a shaving cream and the cosmetically active agent comprises an emollient and a foaming surfactant.

15

11. The cosmetic composition of claim 1, wherein the cosmetic composition is a face cosmetic and the cosmetically active agent comprises a pigment.

12. The cosmetic composition of claim 1 or 2, wherein the cosmetic agent 20 comprises a hydrophobic material, wherein the cosmetically acceptable carrier stabilizes the hydrophobic material in the aqueous medium.

13. The cosmetic composition of claim 2, wherein said cosmetic agent selected to treat imperfections or disorders of the skin is selected from the group 25 consisting of acidulents, antiacne agents, anti-aging agents, anti-inflammatories, anti-irritants, antioxidants, depilatories, detergents, disinfectants, emollients, exfoliants, humectants, lubricants, moisturizers, skin conditioners, skin protectants, skin lightening agents, skin soothing agents, sunscreening agents, and tanning accelerators and mixtures thereof.

30

14. The composition of claim 4, wherein said composition further comprises a cosmetic agent selected from the group consisting of humectants and emollients.

15. The composition of claim 1 or 2, further comprising one or more additives selected from the group consisting of preservatives, abrasives, acidulents, antiacne agents, anti-aging agents, antibacterials, anticaking, anticaries agents, anticellulites, antidandruff, antifungal, anti-inflammatories, anti-irritants, antimicrobials, antioxidants, astringents, antiperspirants, antiseptics, antistatic agents, binders, buffers, additional carriers, chelators, cell stimulants, cleansing agents, conditioners, deodorants, depilatories, detergents, dispersants, emollients, emulsifiers, enzymes, essential oils, exfoliants, fibers, film forming agents, fixatives, foaming agents, foam stabilizers, foam boosters, fungicides, gellants, glossers, hair conditioner, hair set resins, hair sheen agents, hair waving agents, humectants, lubricants, moisture barrier agents, moisturizers, ointment bases, opacifier, plasticizer, polish, polymers, powders, propellant, protein, refatting agents, sequestrant, silicones, skin calming agents, skin cleansers, skin conditioners, skin healing, skin lightening agents, skin protectants, skin smoothing agents, skin softening agents, skin soothing agents, stabilizers, sunscreen agents, surfactants, suspending agents, tanning accelerators, thickeners, vitamins, waxes, wetting agents, liquefiers, colors, flavors and/or fragrances.

16. The composition of claim 1, wherein the cosmetic composition takes a form selected from the group consisting of lotions, creams, sticks, roll-on formulations, mousses, sprays, aerosols, pad-applied formulations and masks.

25

17. The composition of claim 1, wherein the viscosification occurs at a temperature in the range of about 27-40°C.

18. The composition of claim 1, wherein the viscosification occurs at a 30 temperature in the range of about 30 to 37°C.

19. The composition of claim 1, wherein said composition is formulated as a product selected from the group consisting of baby products, baby shampoos, lotions, powders and creams; bath preparations, bath oils, tablets and salts, bubble baths, bath fragrances, bath capsules; eye makeup preparations, eyebrow pencil, eyeliner, eye shadow, eye lotion, eye makeup remover, mascara; fragrance preparations, colognes, toilet waters, powders and sachets; noncoloring hair preparations, hair conditioner, hair spray, hair straighteners, permanent waves, rinses, shampoos, tonics, dressings and other grooming aids; color cosmetics; hair coloring preparations, hair dye, hair tints, hair color sprays, hair lighteners and hair bleaches; makeup preparations, face powders, foundations, leg and body paints, lipstick; makeup bases, rouges and makeup fixatives; manicuring preparations, basecoats, undercoats, cuticle softeners, nail creams, nail extenders, nail polish and enamel, and remover, oral hygiene products, dentifrices, mouthwashes; personal cleanliness, bath soaps, detergents, deodorants, douches and feminine hygiene products; shaving preparations, aftershave lotion, beard softeners, men's talcum shaving cream, shaving soap, preshave lotions; skin care preparations, skin cleansing preparations, skin antiseptics, depilatories, face and neck cleansers, body and hand cleansers, foot powders; moisturizers, night preparations, paste masks, skin fresheners; and suntan preparations, suntan creams, gels and lotions, and indoor tanning preparations.

20

20. The cosmetic composition of claim 1 or 2, wherein the poloxamer component is present in an amount in the range of about 0.01 to 20 wt% and the poly(acrylic acid) component is present in the amount of about 0.01 to 20 wt%.

25

21. The cosmetic composition of claim 1, wherein the polymer network comprises a plurality of poloxamers.

30

22. The cosmetic composition of claim 1, wherein the polymer network comprises a plurality of poloxamer components randomly bonded to a poly(acrylic acid) backbone.

23. The cosmetic composition of claim 1, wherein the reversibly viscosifying polymer composition comprises a plurality of poly(acrylic acid) components randomly bonded to a poloxamer component.

5 24. The cosmetic composition of claim 1, wherein the aqueous-based medium is selected from the group consisting of water, salt solutions and water with water-miscible organic compound(s).

10 25. The cosmetic compositions of claim 1, further comprising an additive selected to increase transition temperature and increase viscosity of the reversible viscosifying polymer network.

15 26. The cosmetic composition of claim 1, further comprising an additive selected to increase transition temperature and decrease viscosity of the reversible viscosifying polymer network.

20 27. The cosmetic composition of claim 1, further comprising an additive selected to increase transition temperature without affecting viscosity of the reversible viscosifying polymer network.

25 28. The cosmetic composition of claim 1, further comprising an additive selected to decrease transition temperature and increase viscosity of the reversible viscosifying polymer network.

29. The cosmetic composition of claim 1, further comprising an additive selected to decrease transition temperature and decrease viscosity of the reversible viscosifying polymer network.

30. The cosmetic composition of claim 1, further comprising an additive selected to decrease transition temperature without affecting viscosity of the reversible viscosifying polymer network.

5 31. The cosmetic composition of claim 1, further comprising an additive selected to increase viscosity without affecting transition temperature of the reversibly viscosifying polymer network.

10 32. The cosmetic composition of claim 1, further comprising an additive selected to decrease viscosity without affecting transition temperature of the reversibly viscosifying polymer network.

15 33. The cosmetic composition of claim 1 or 2, characterized in that the gel remains translucent to light before and after response to the environmental stimulus.

34. The cosmetic composition of claim 1, wherein the poly(acrylic acid) is branched.

20 35. Method of making a cosmetic composition, comprising:
dissolving a poloxamer capable of aggregation in response to a change in temperature in acrylic acid monomer;
initiating polymerization of the monomer to form a poly(acrylic acid) randomly bonded to the poloxamer, so as to form a reversibly viscosifying polymer composition;
mixing the reversibly gelling polymer compositions with a cosmetic agent
25 which imparts a desired cosmetic effect to the composition.

36. The method of claim 35, wherein a polymerization initiator is selected to provide the polymer network having a selected temperature of viscosification.

30 37. The method of claim 36, wherein one or more poloxamers are added.

38. The cosmetic composition of claim 1, wherein the reversibly viscosifying polymer network is present in an amount in the range of 0.01% - 10%.

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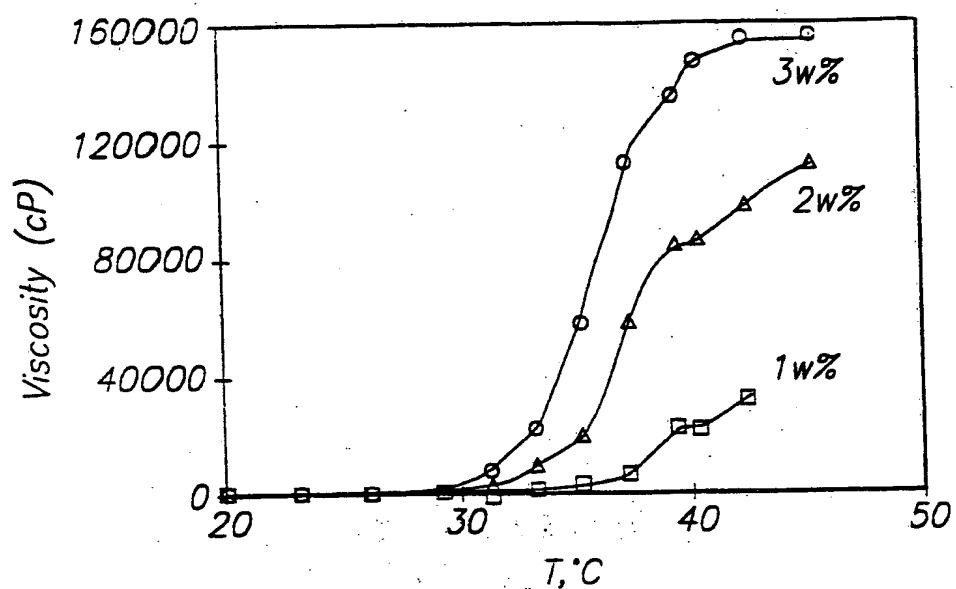


FIG. 1

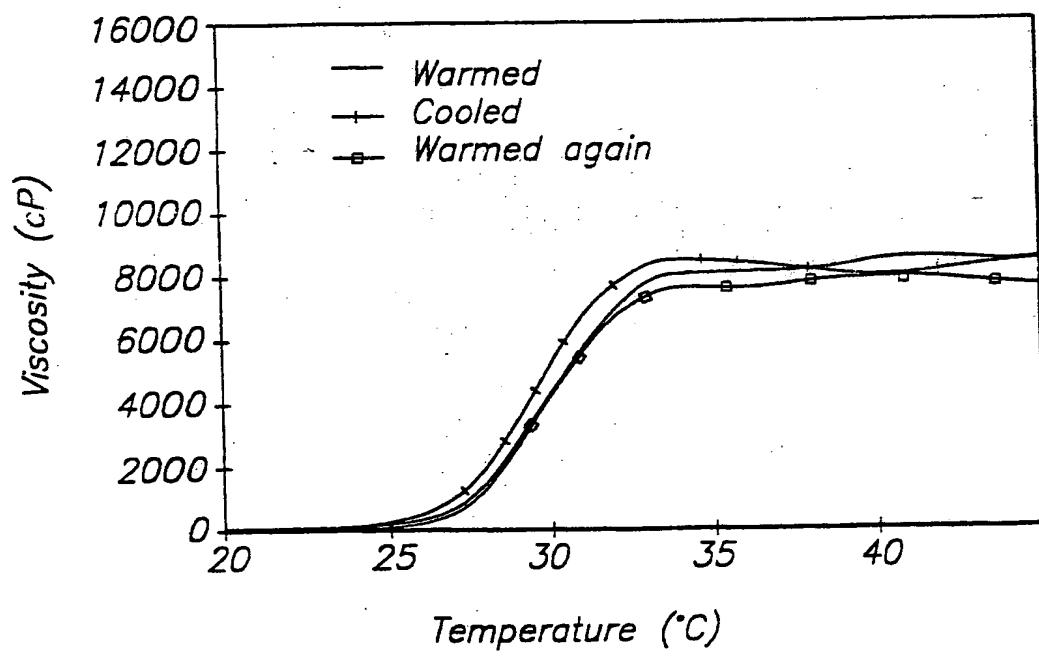


FIG. 2

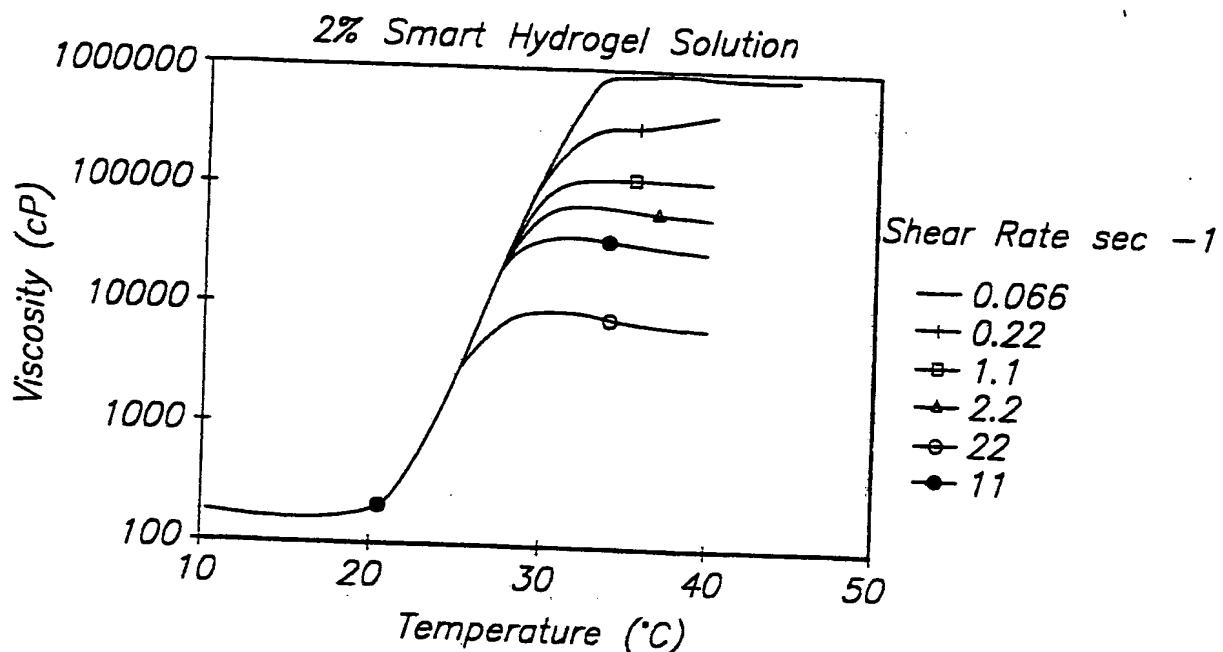


FIG. 3

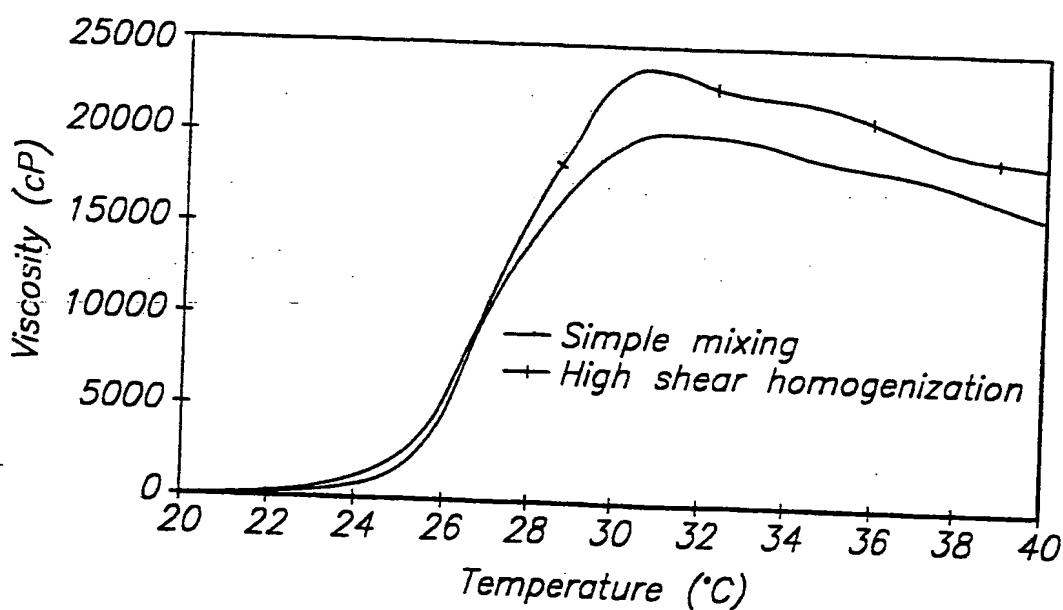


FIG. 4

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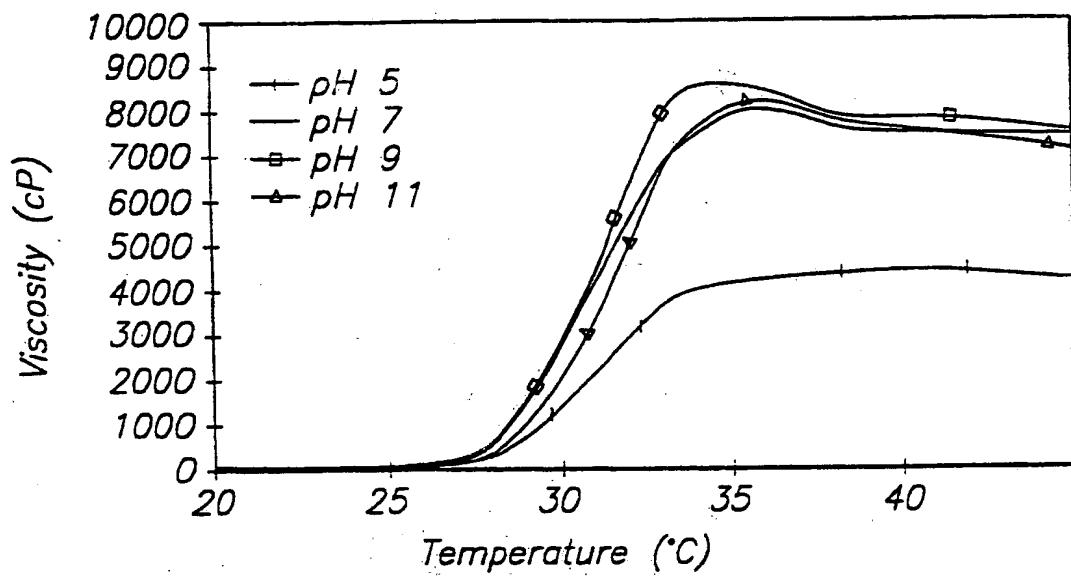


FIG. 5

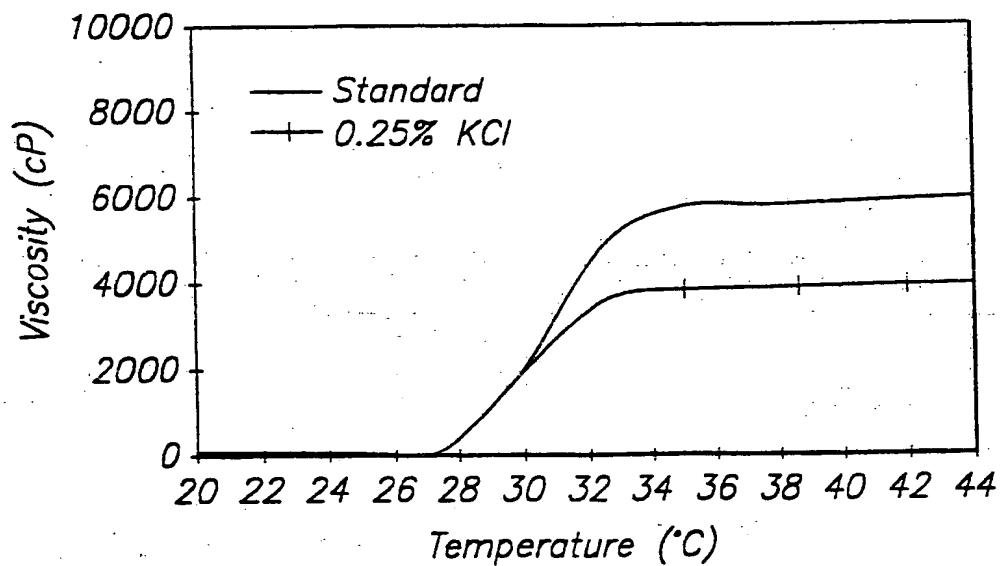


FIG. 6

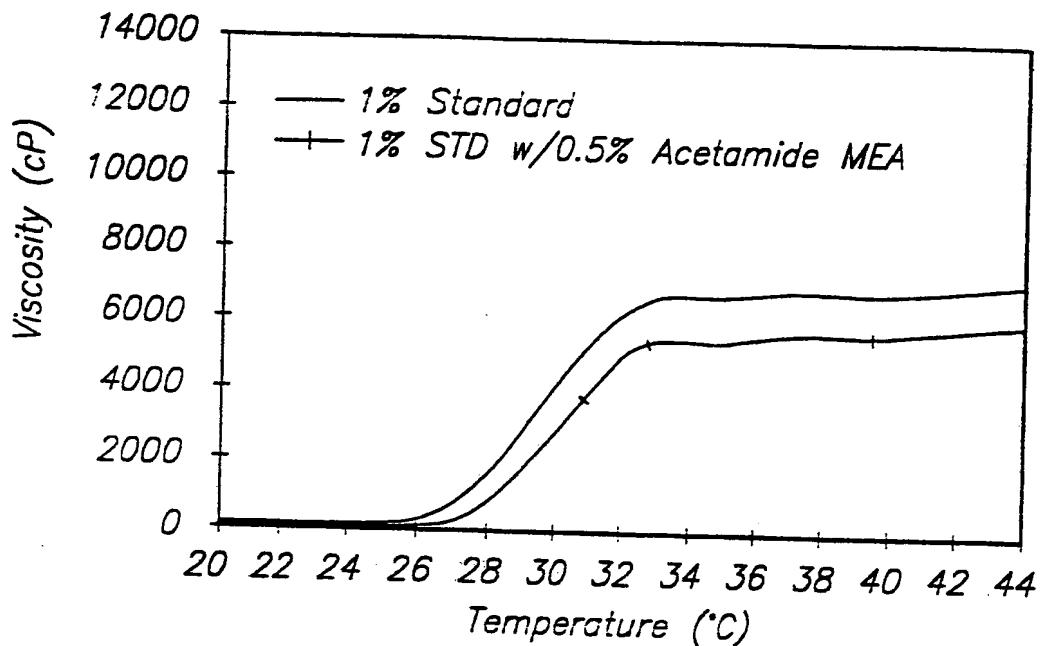


FIG. 7

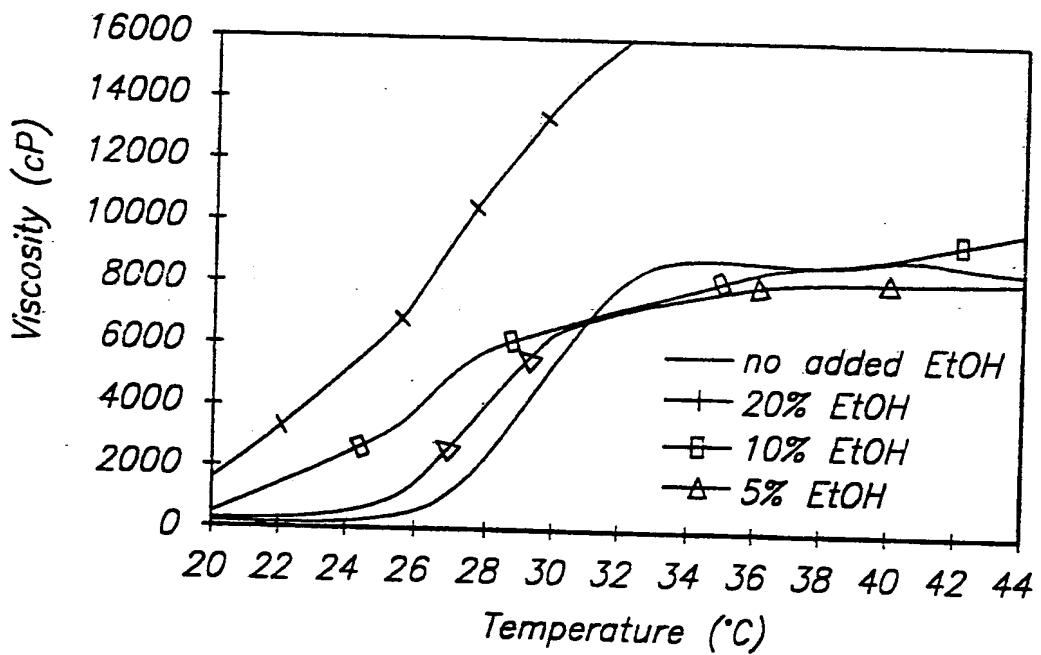
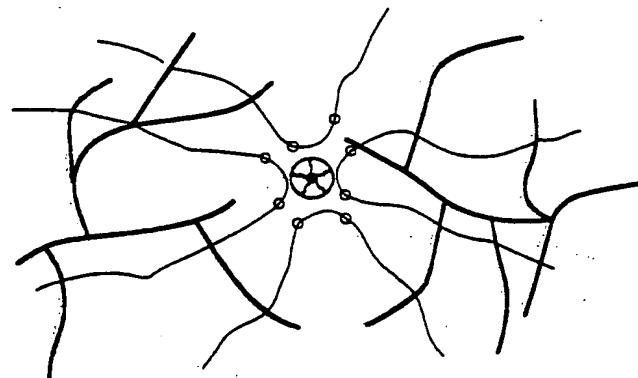


FIG. 8



— PPO — PEO — Acrylic Acid $\bigcirc \times$ Oil Droplet

FIG. 9

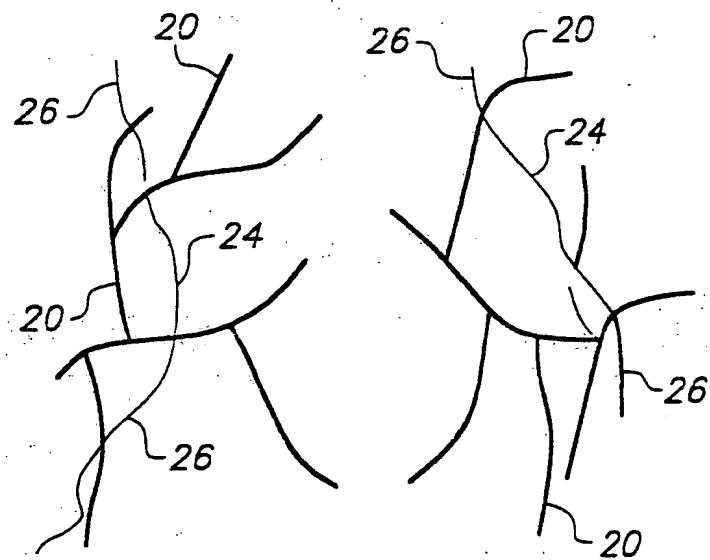


FIG. 10A

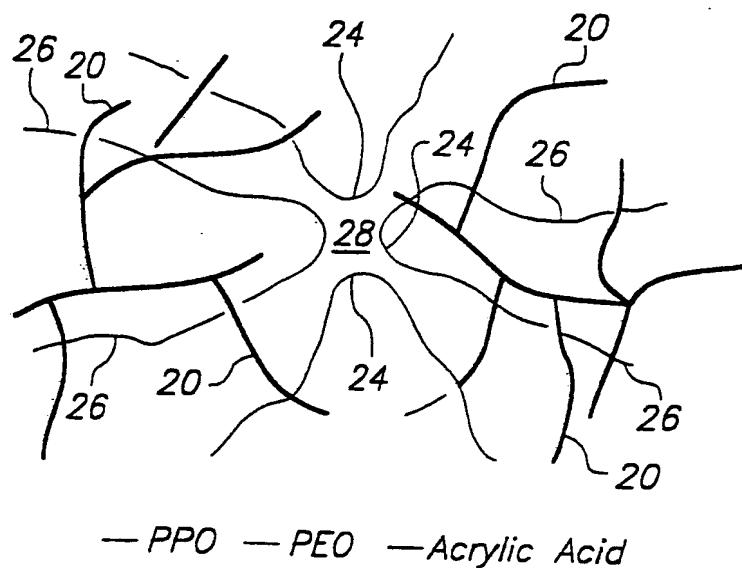


FIG. 10B

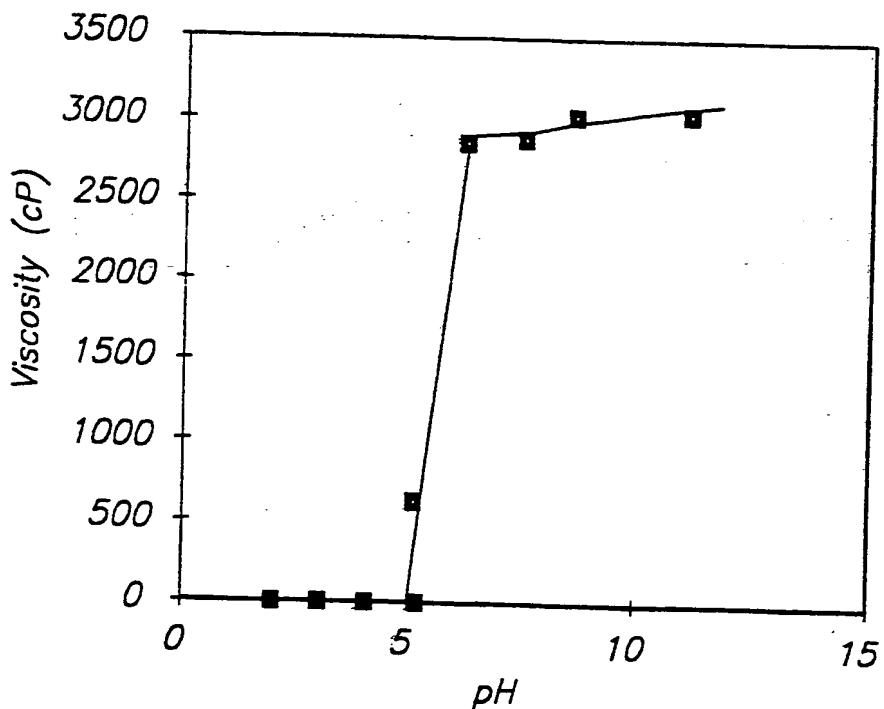
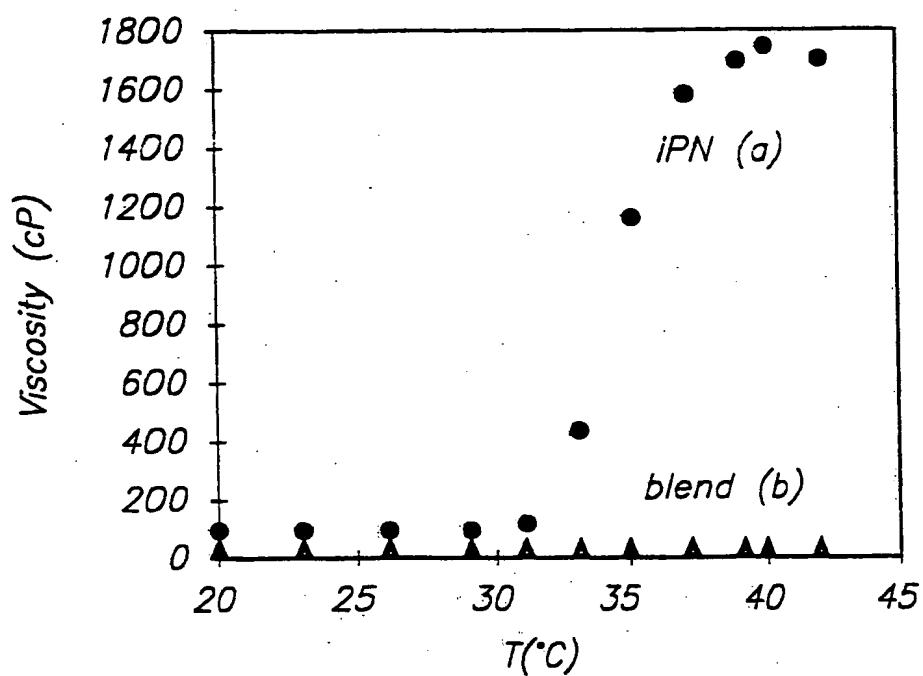
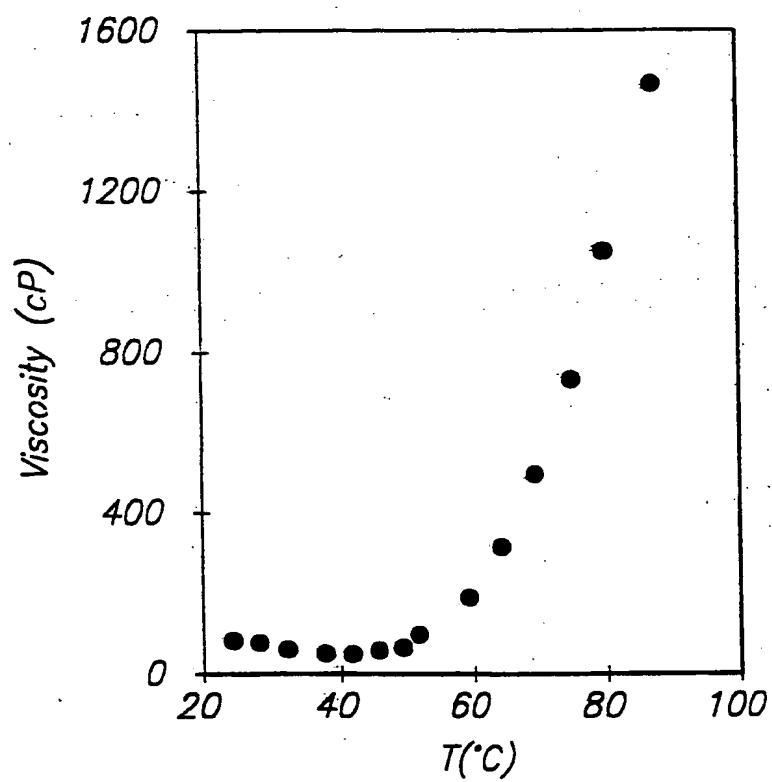
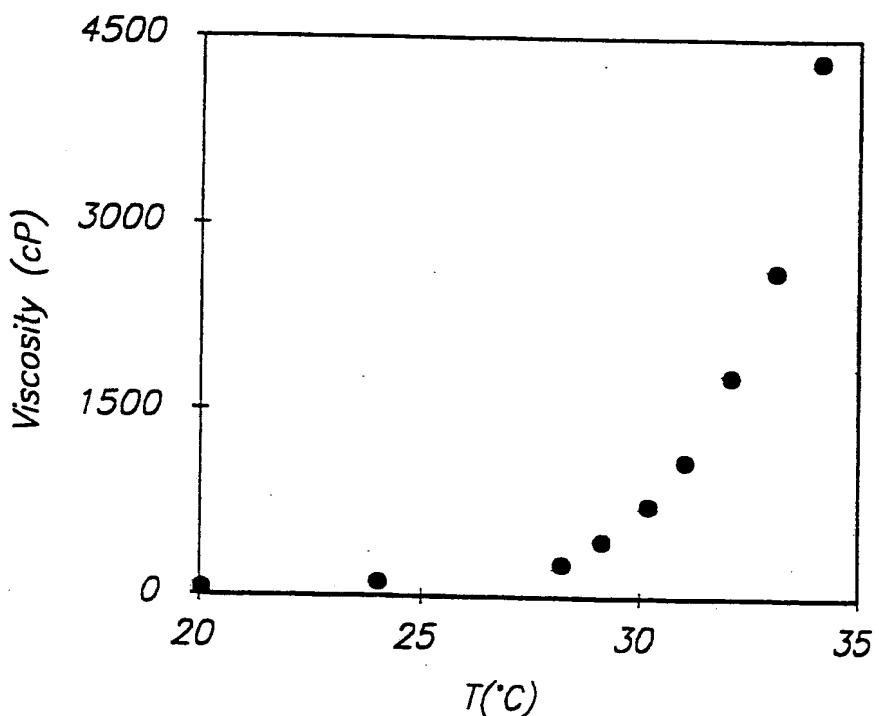
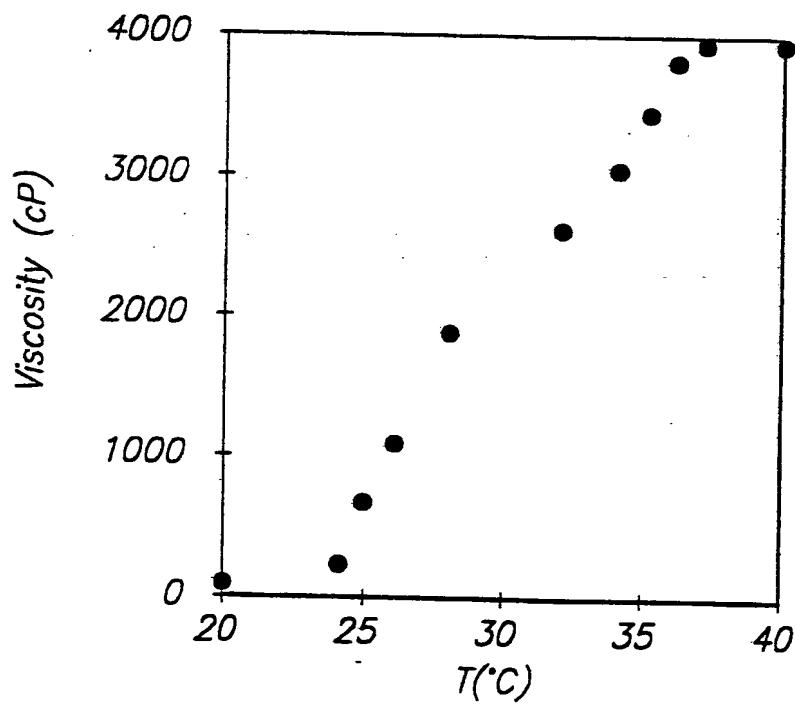


FIG. 11

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**FIG. 12****FIG. 13**

**FIG. 14****FIG. 15**

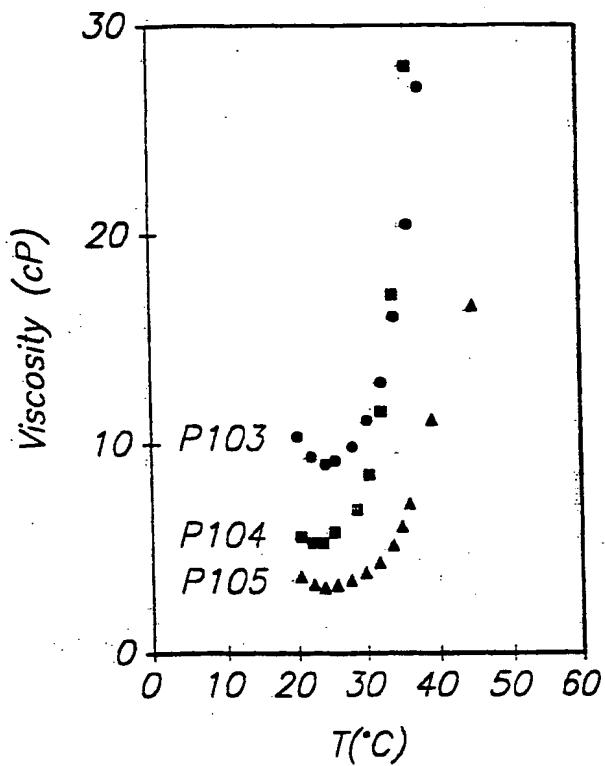


FIG. 16

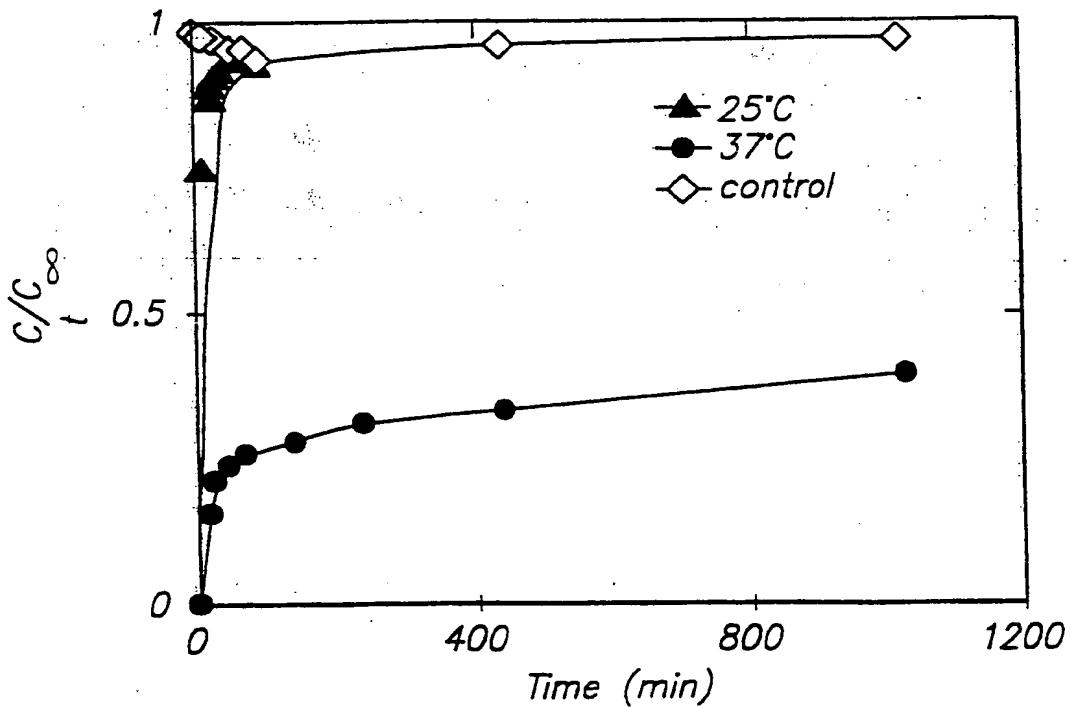


FIG. 17

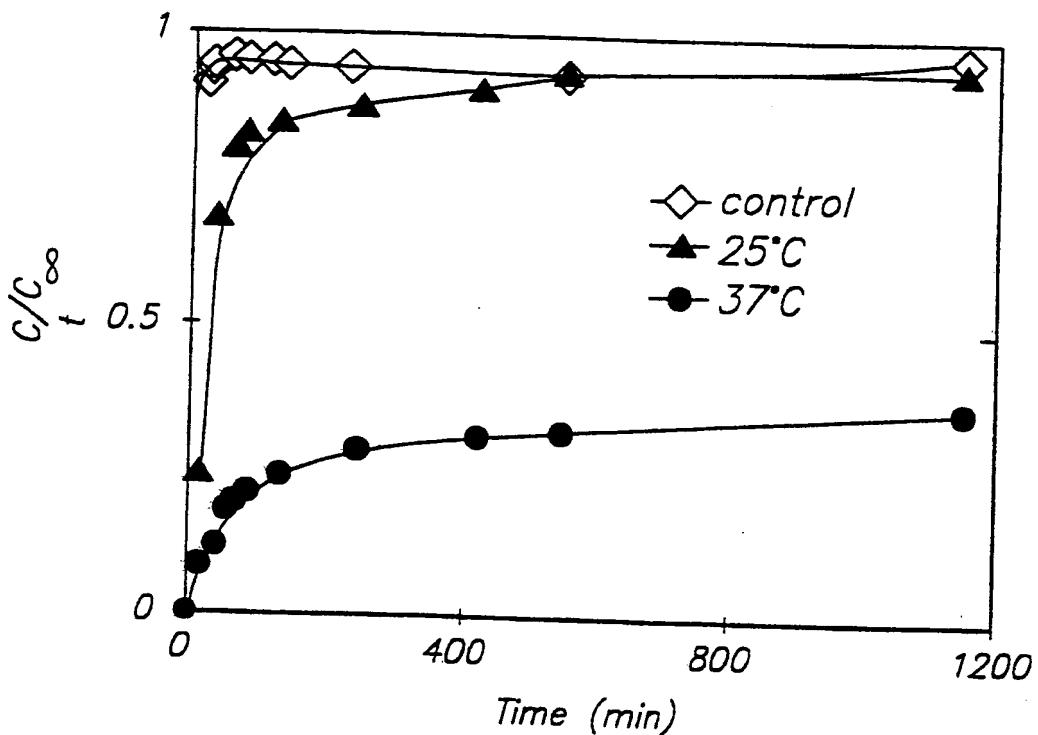


FIG. 18

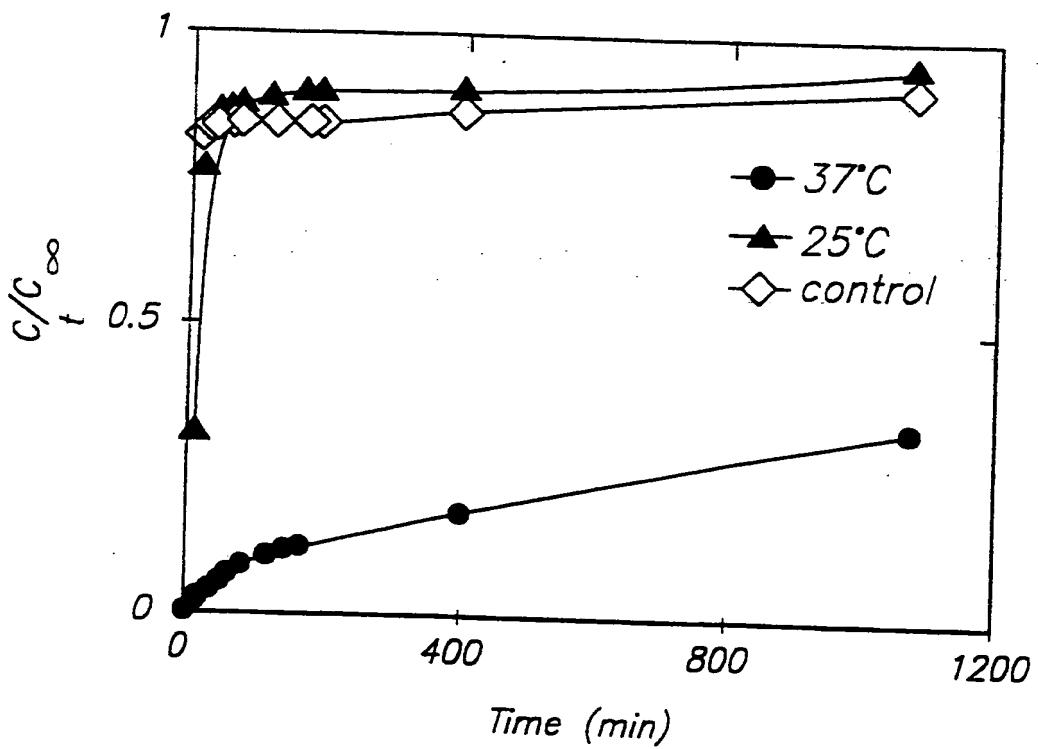


FIG. 19

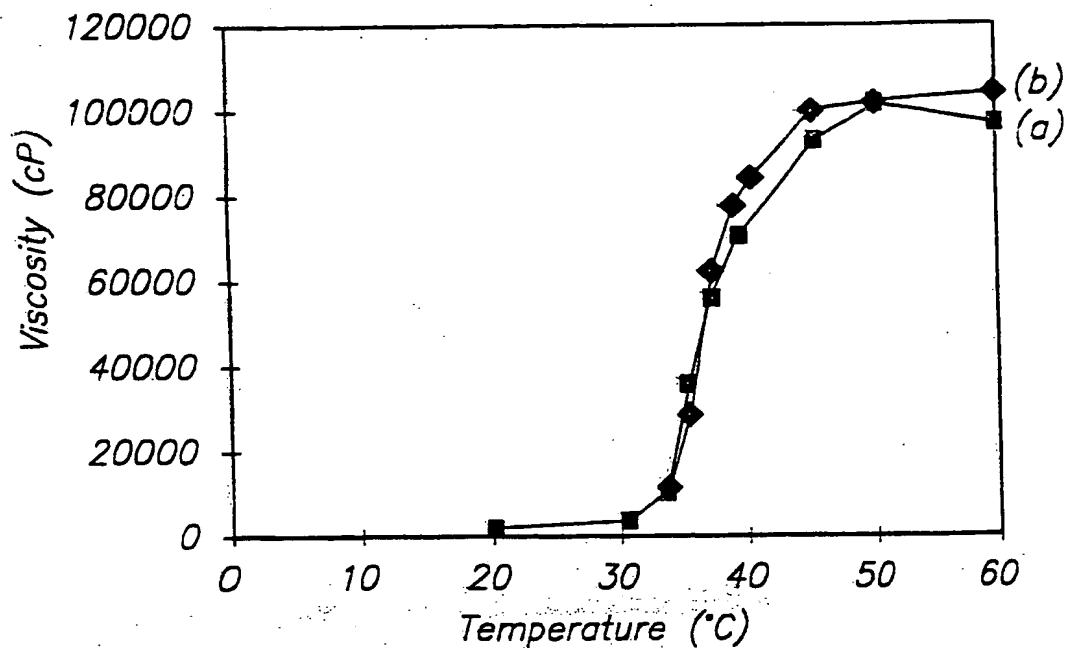


FIG. 20

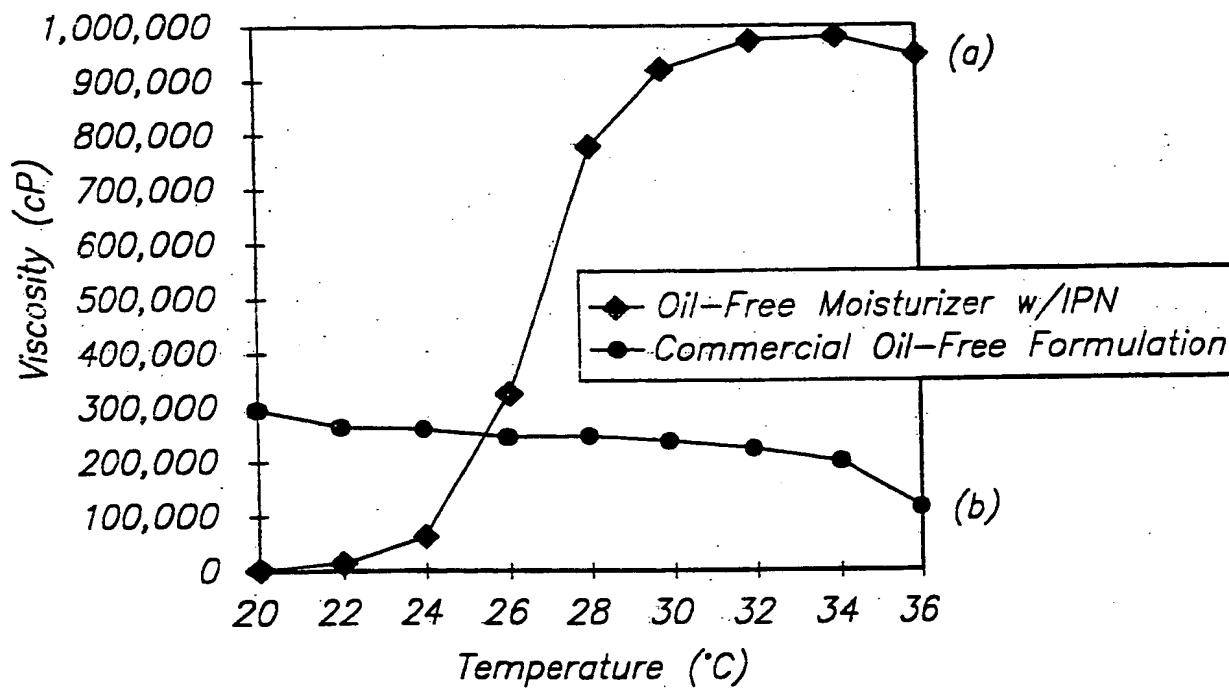


FIG. 21

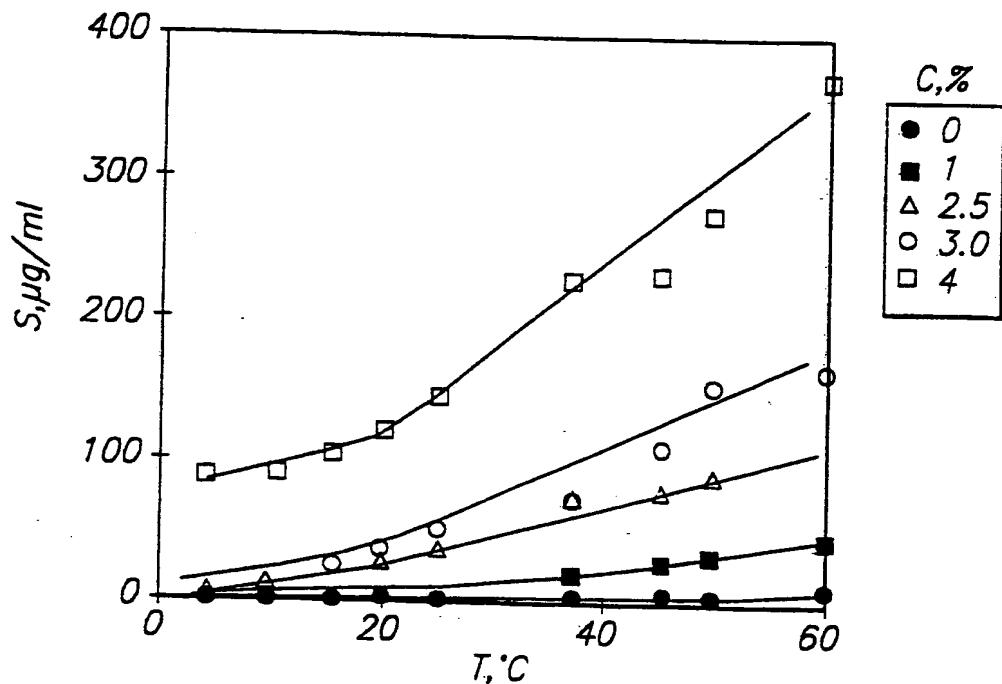


FIG. 22A

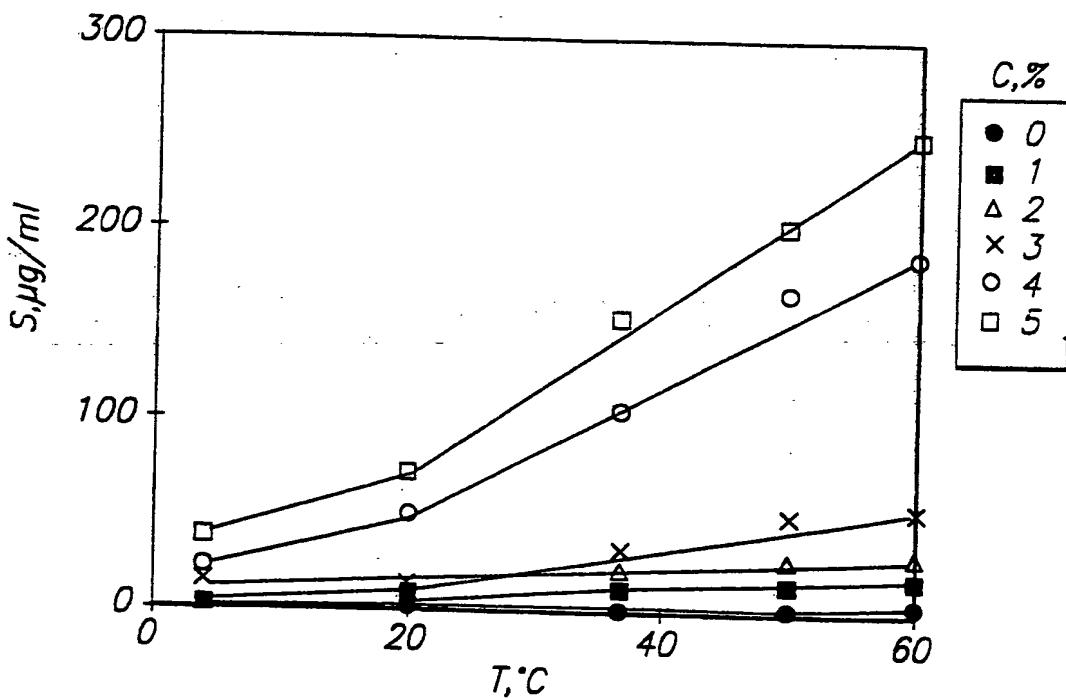


FIG. 22B

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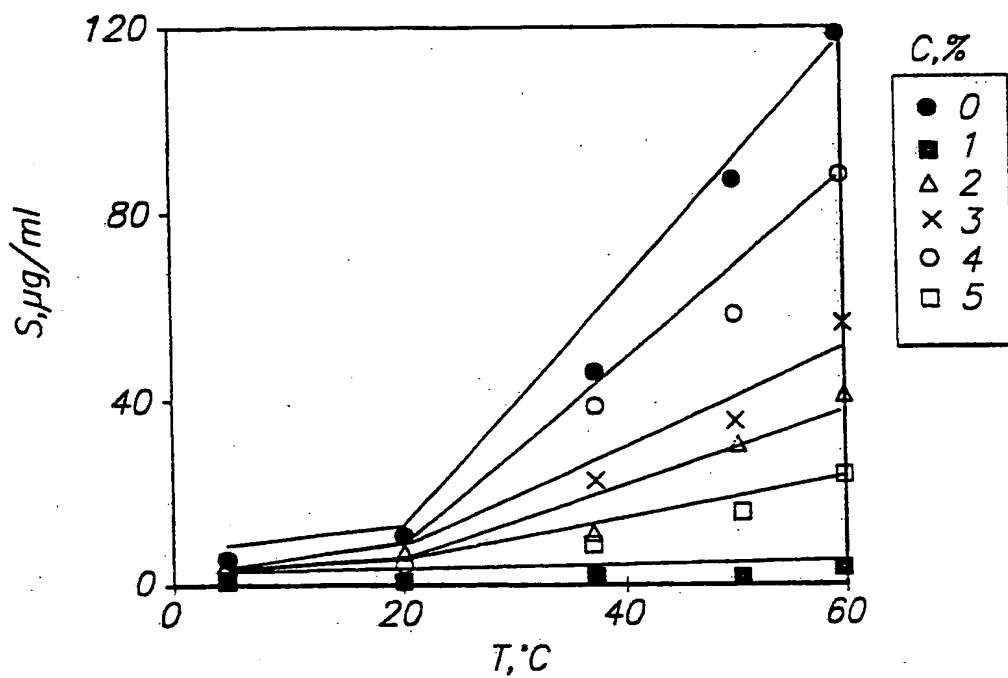


FIG. 22C

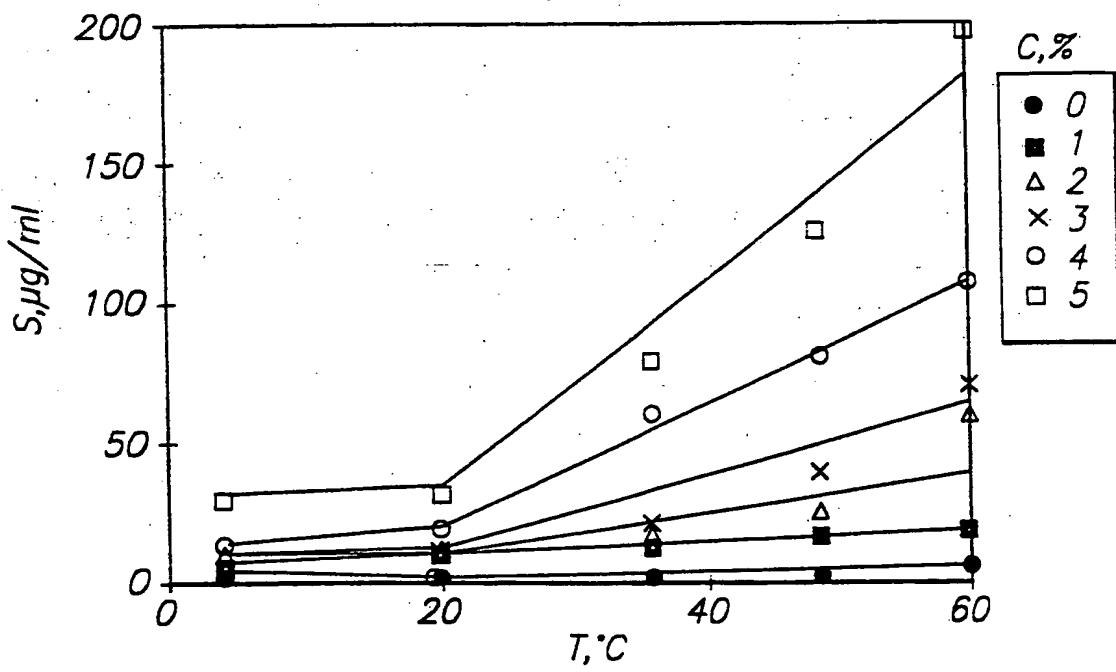


FIG. 22D

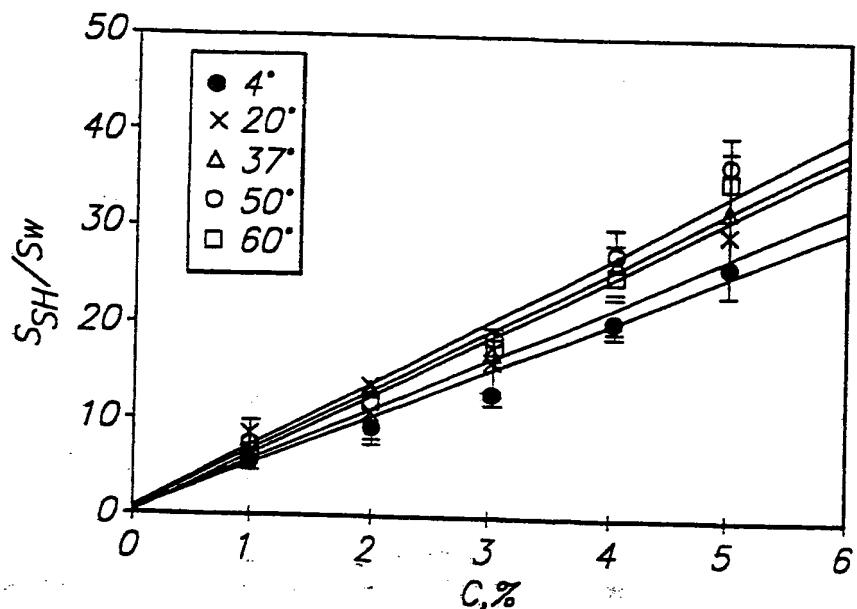


FIG. 23

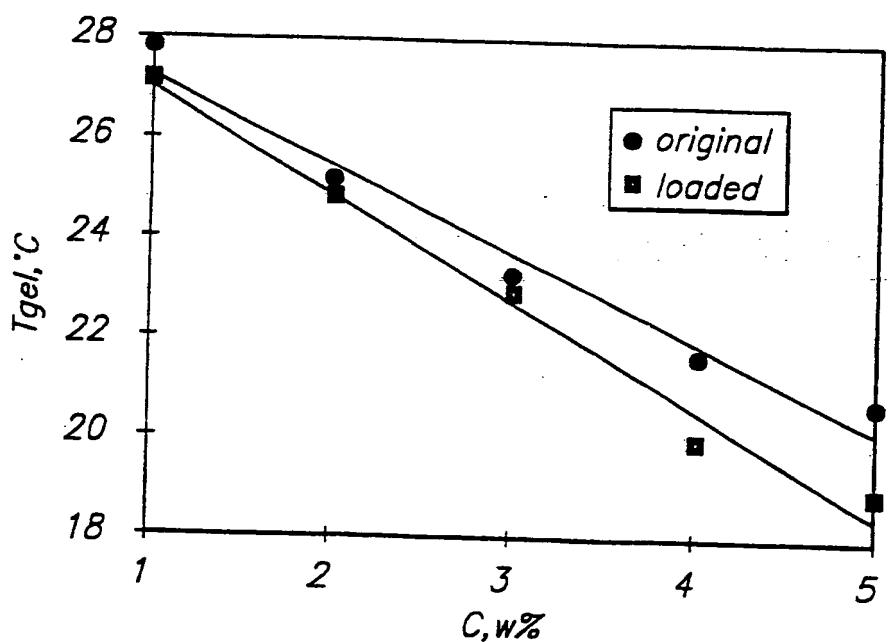


FIG. 24

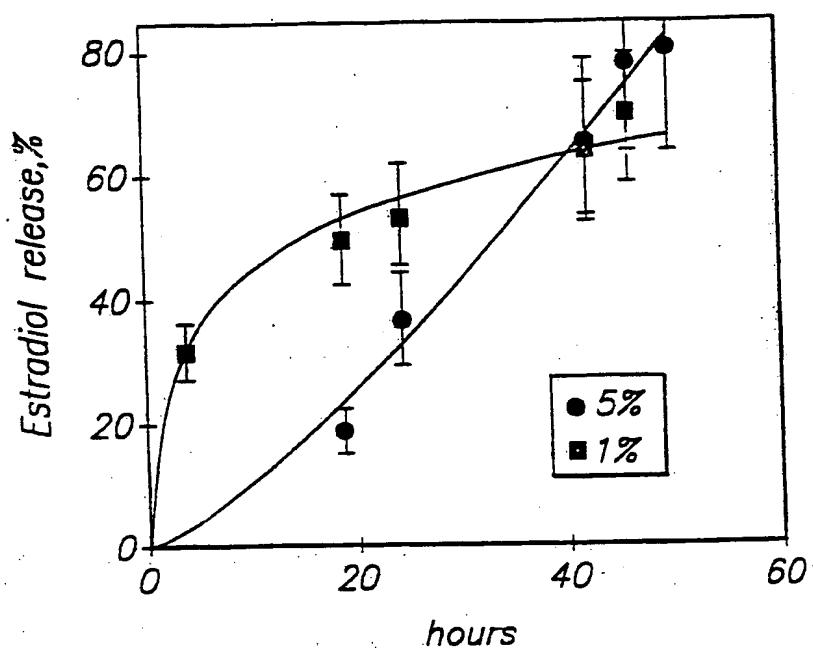


FIG. 25A

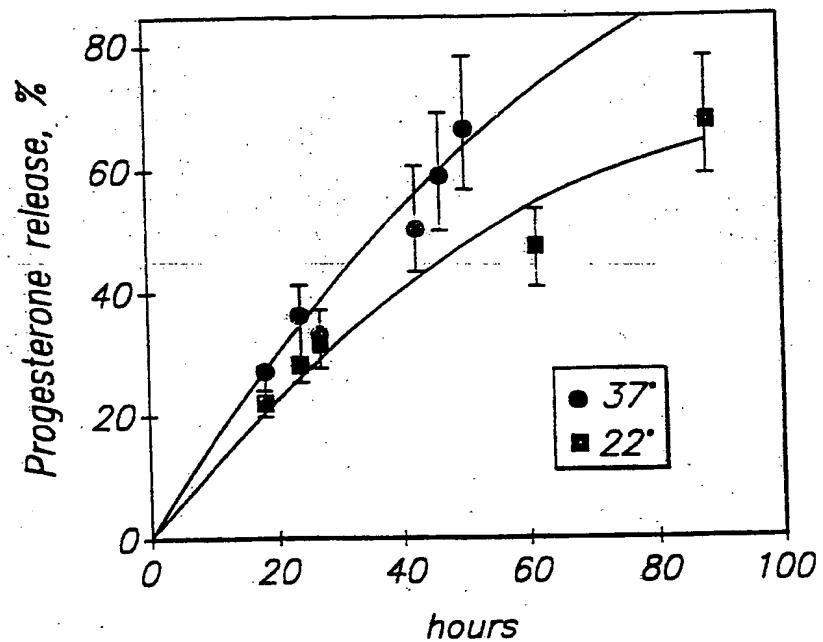


FIG. 25B

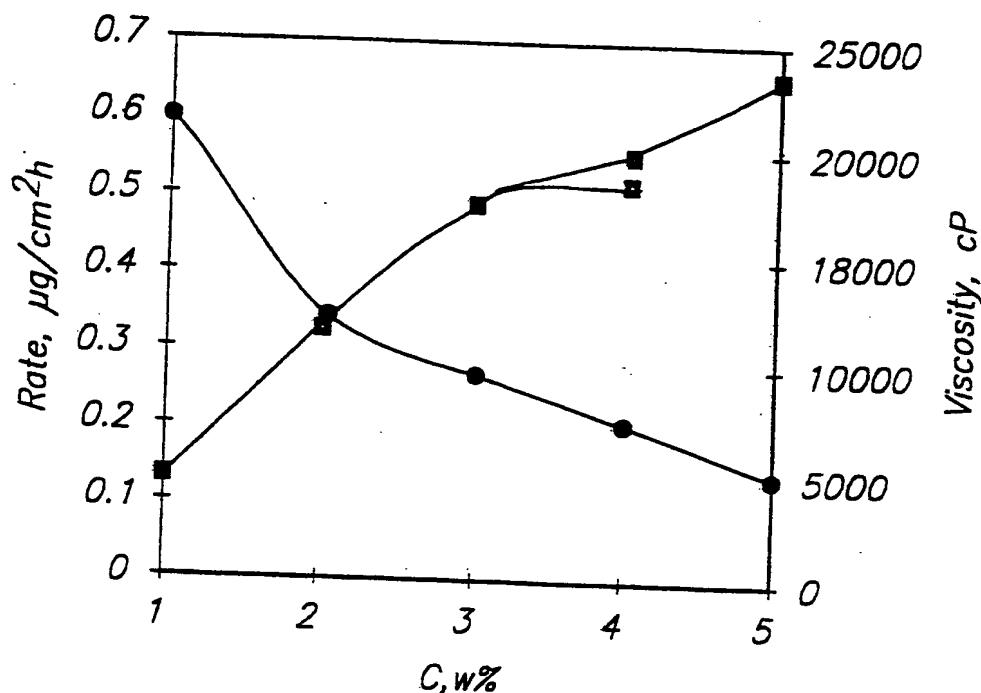


FIG. 26

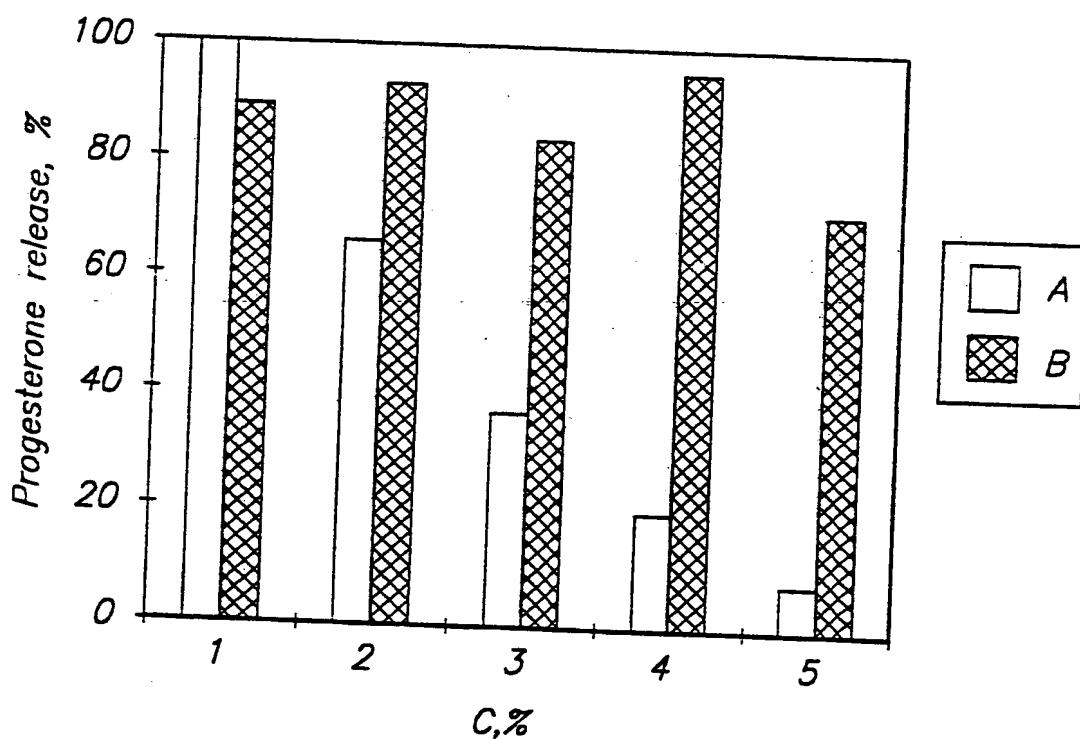


FIG. 27

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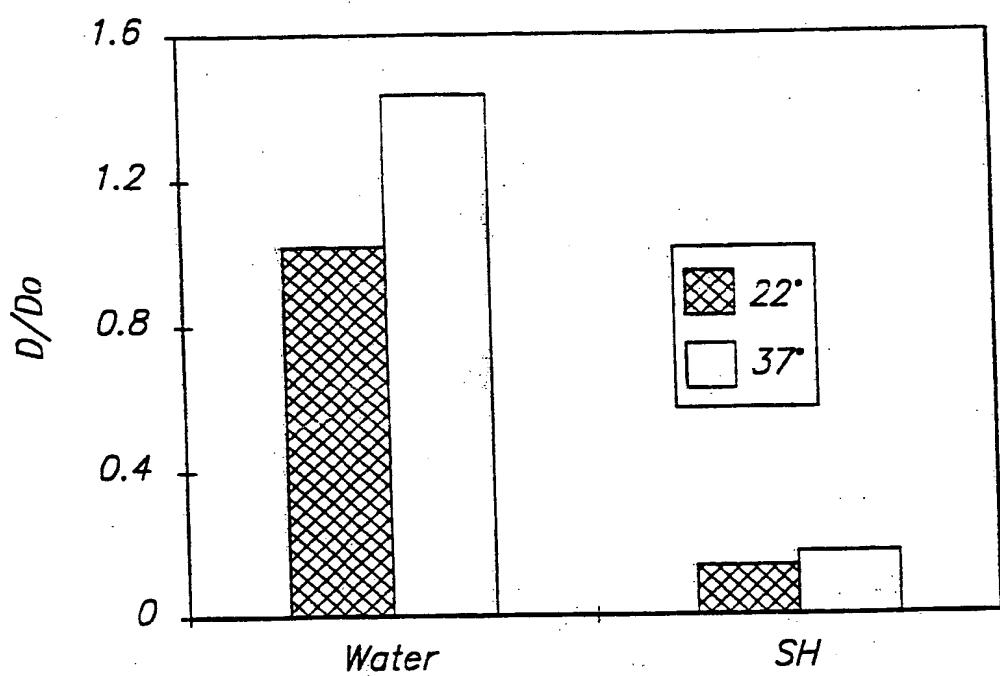


FIG. 28

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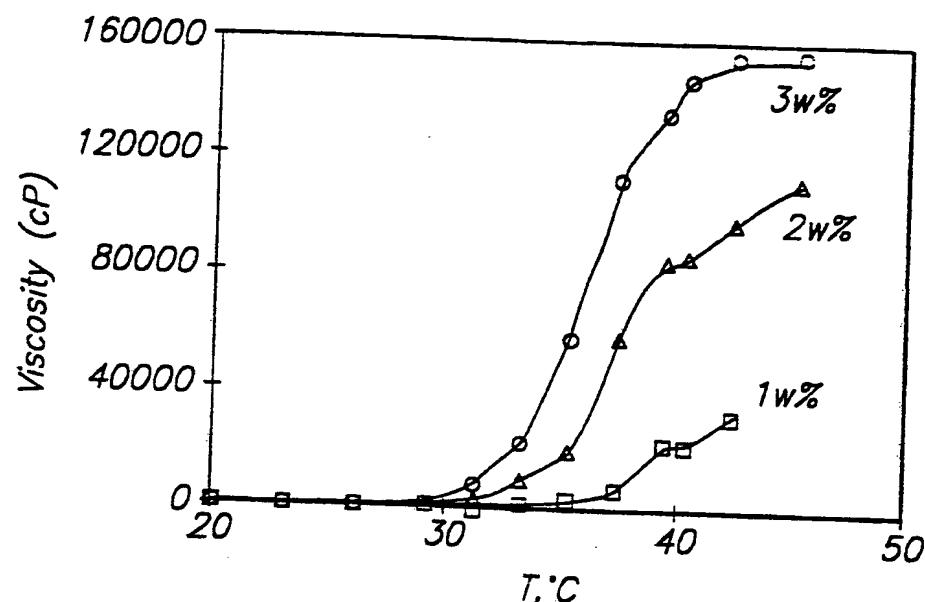


FIG. 1

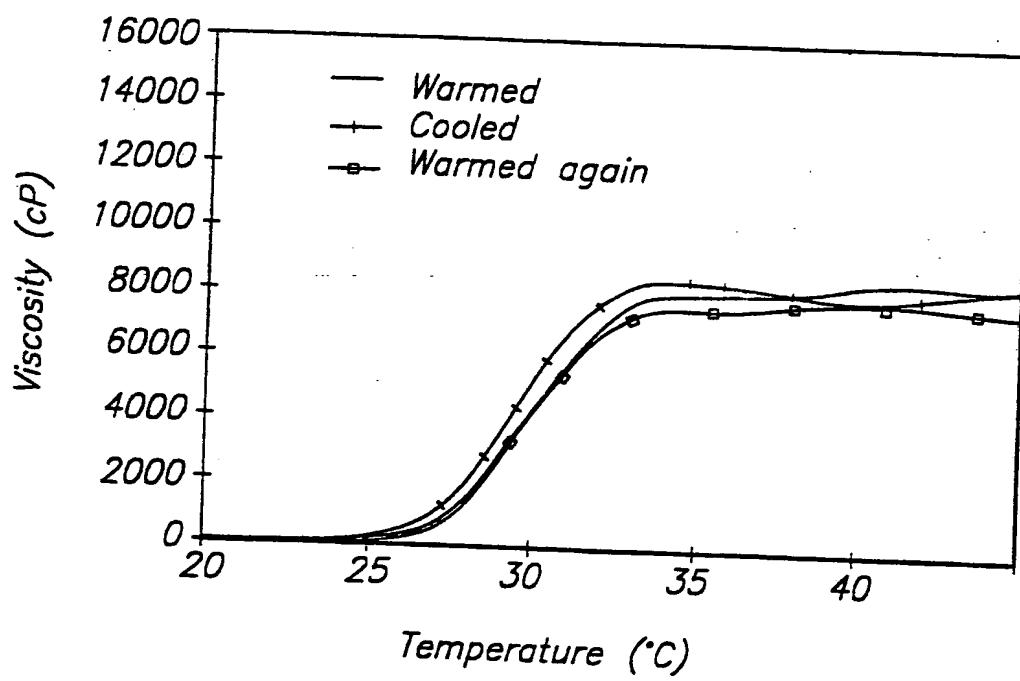


FIG. 2

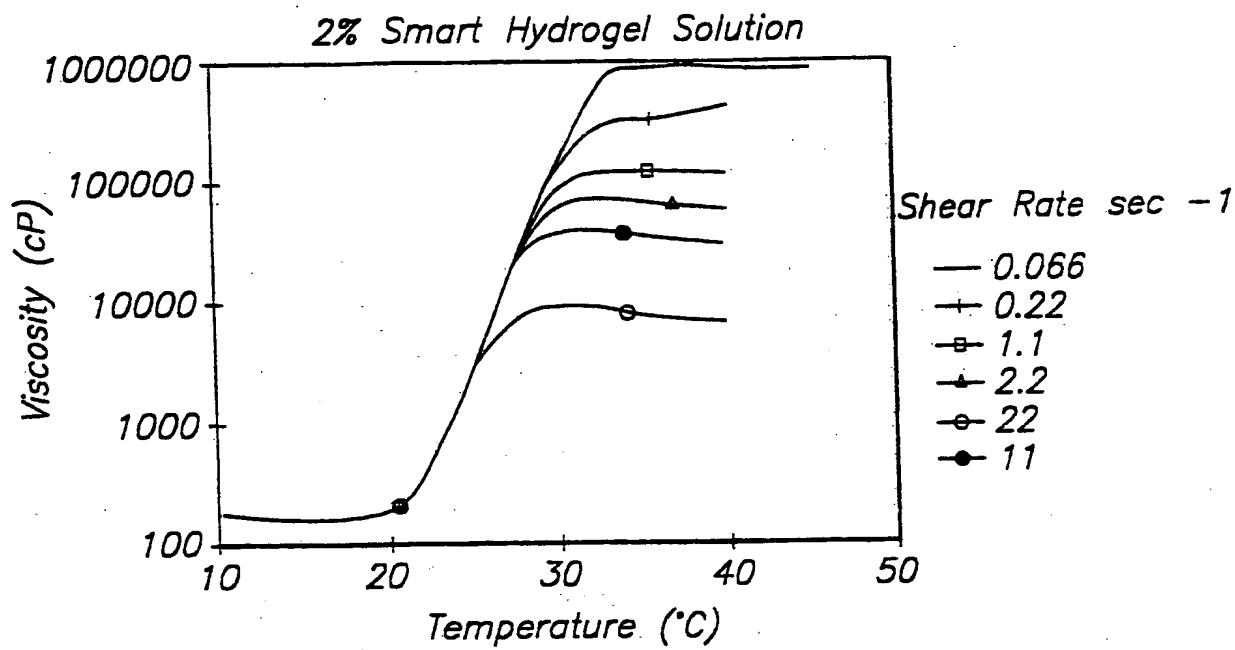


FIG. 3

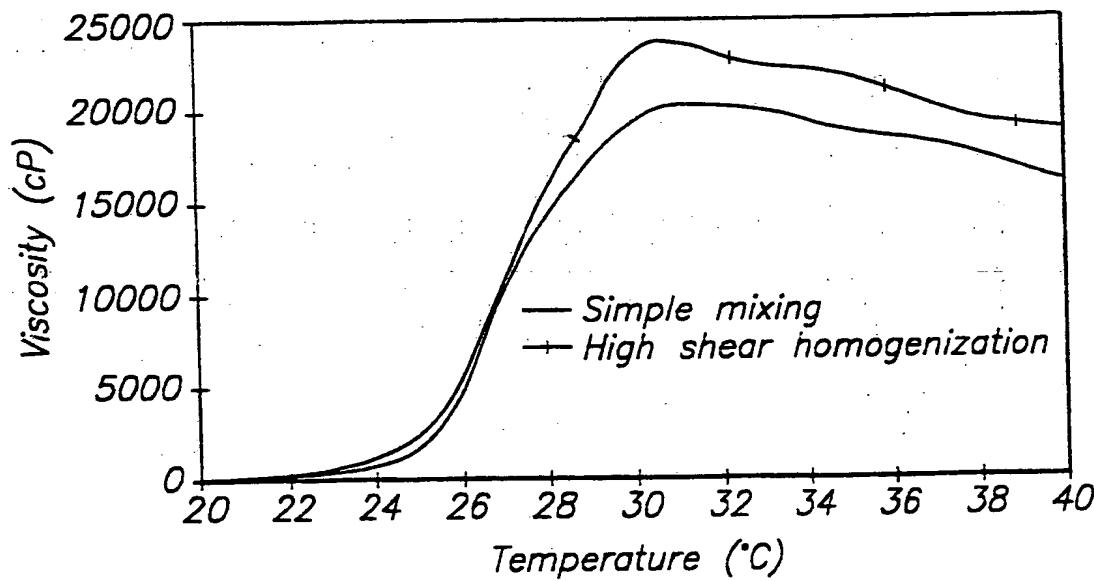


FIG. 4

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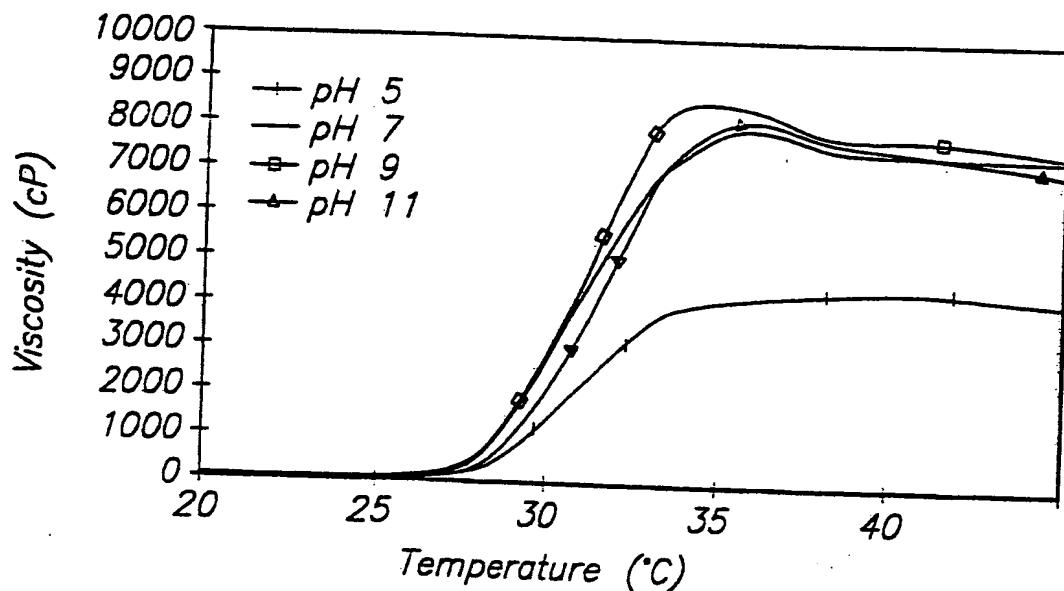


FIG. 5

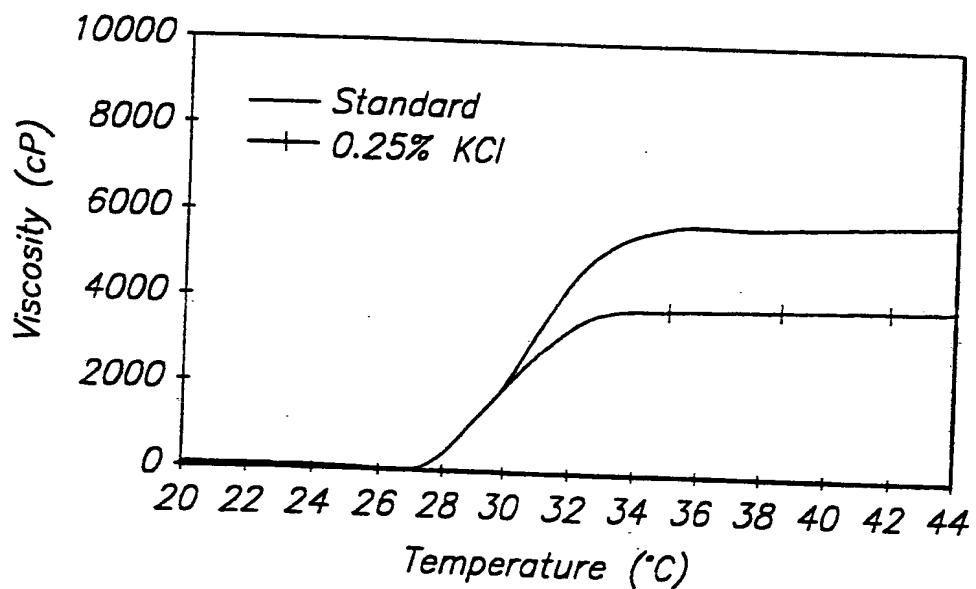


FIG. 6

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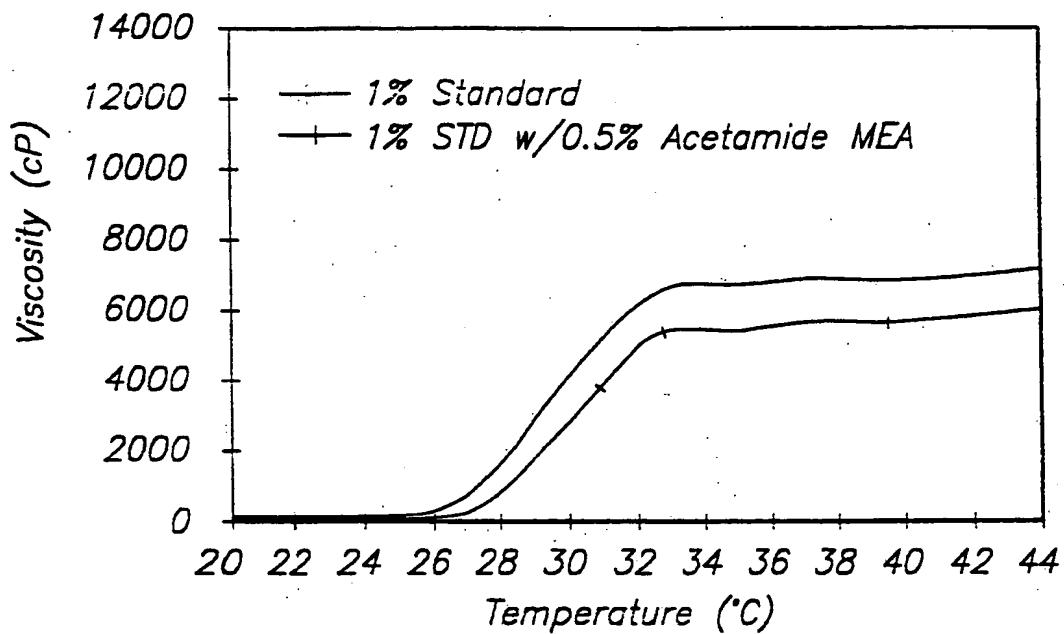


FIG. 7

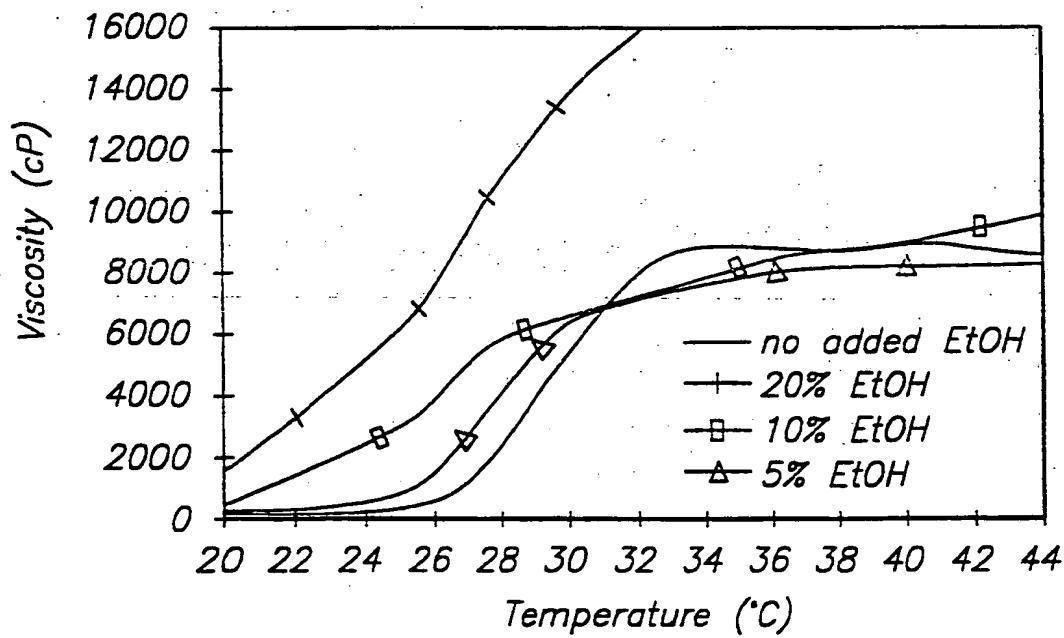
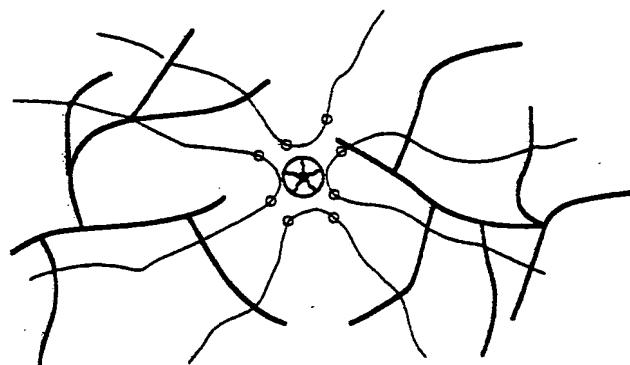


FIG. 8



— PPO — PEO — Acrylic Acid Oil Droplet

FIG. 9

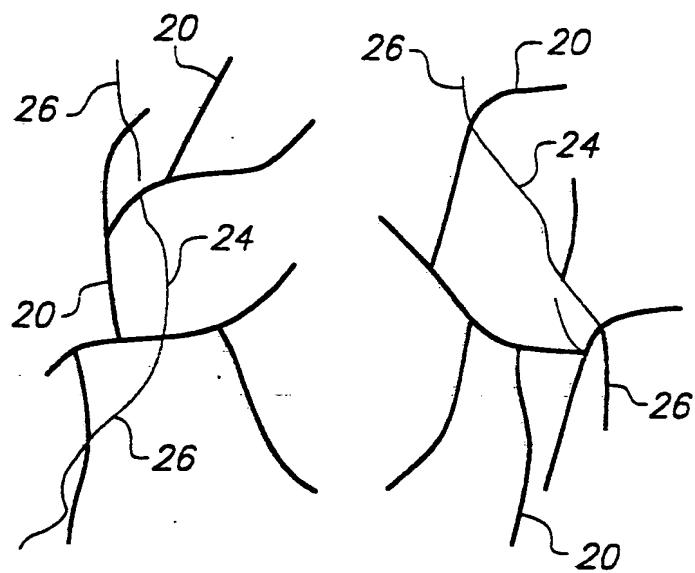


FIG. 10A

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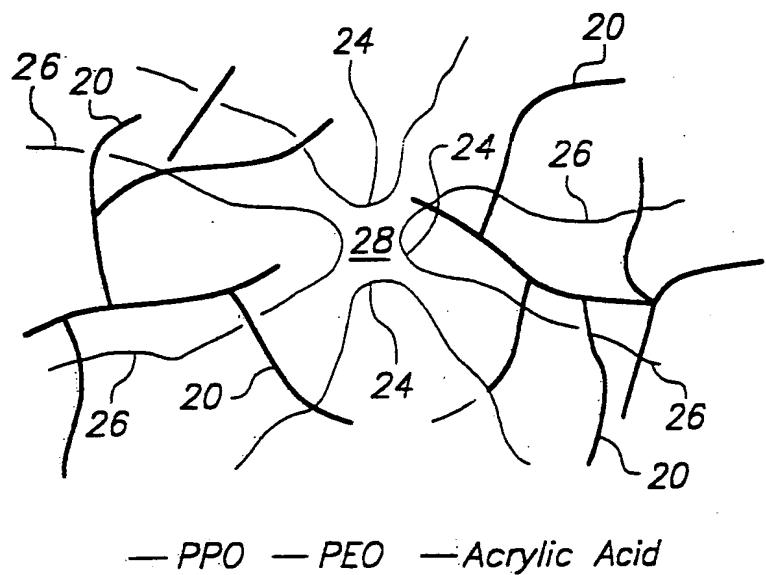


FIG. 10B

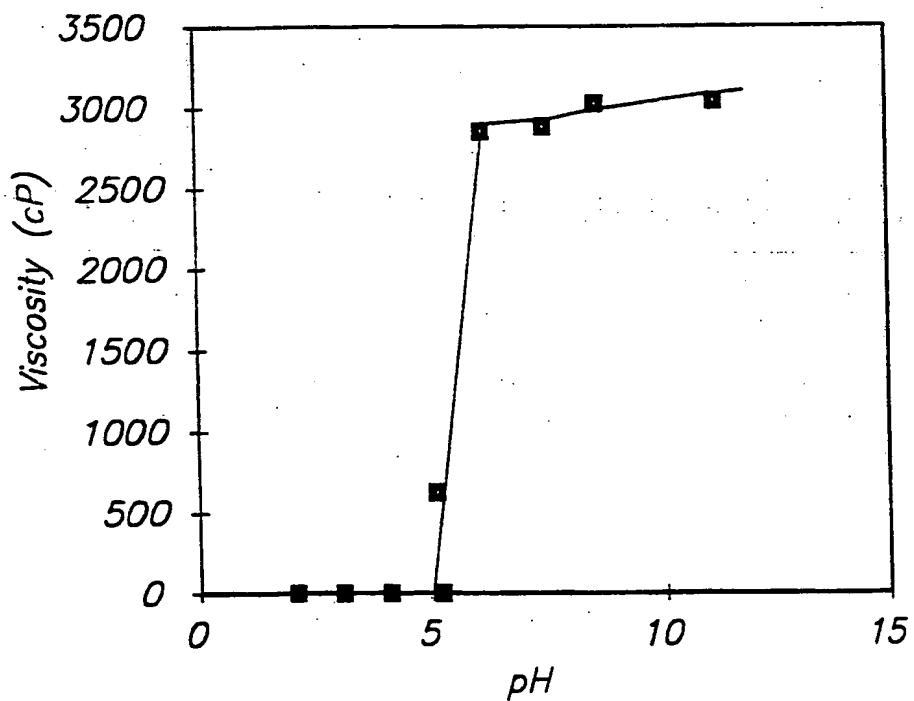


FIG. 11

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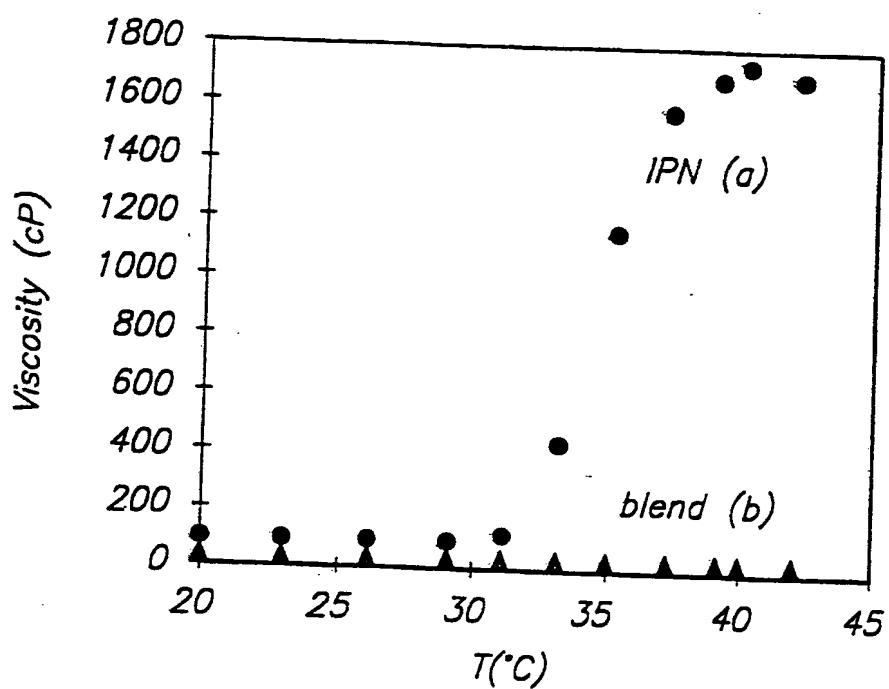


FIG. 12

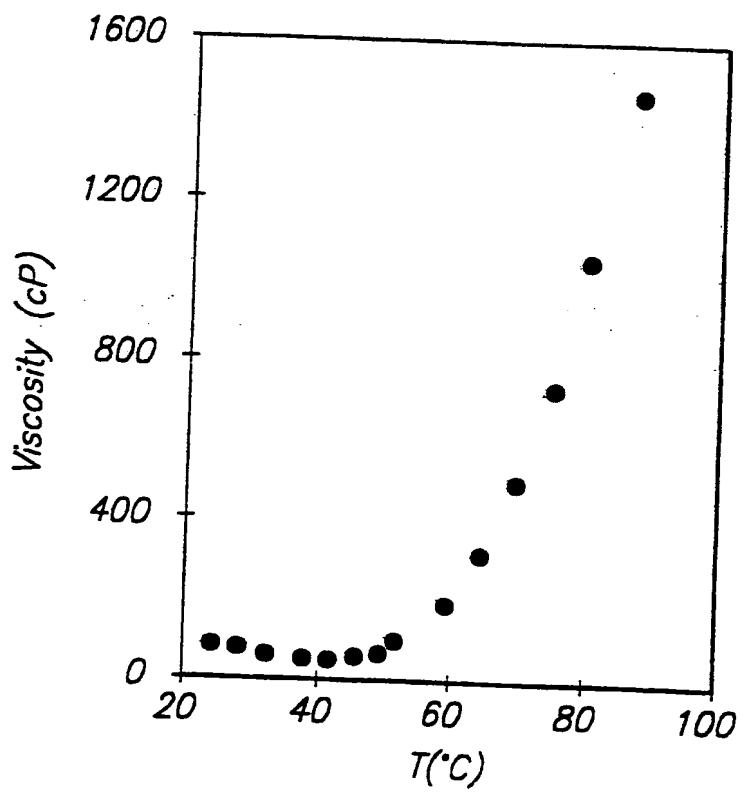


FIG. 13

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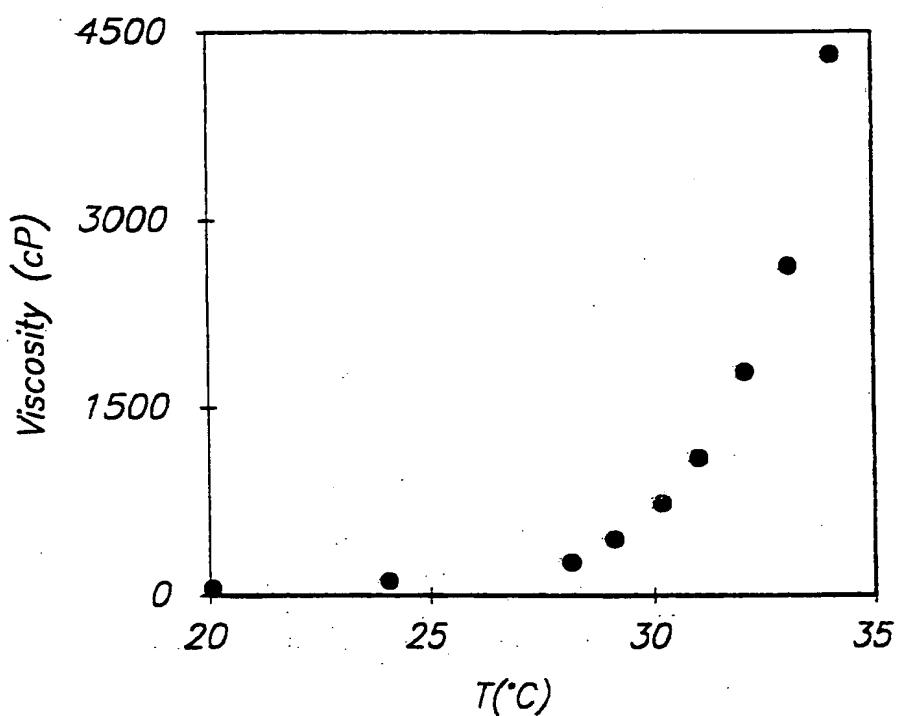


FIG. 14

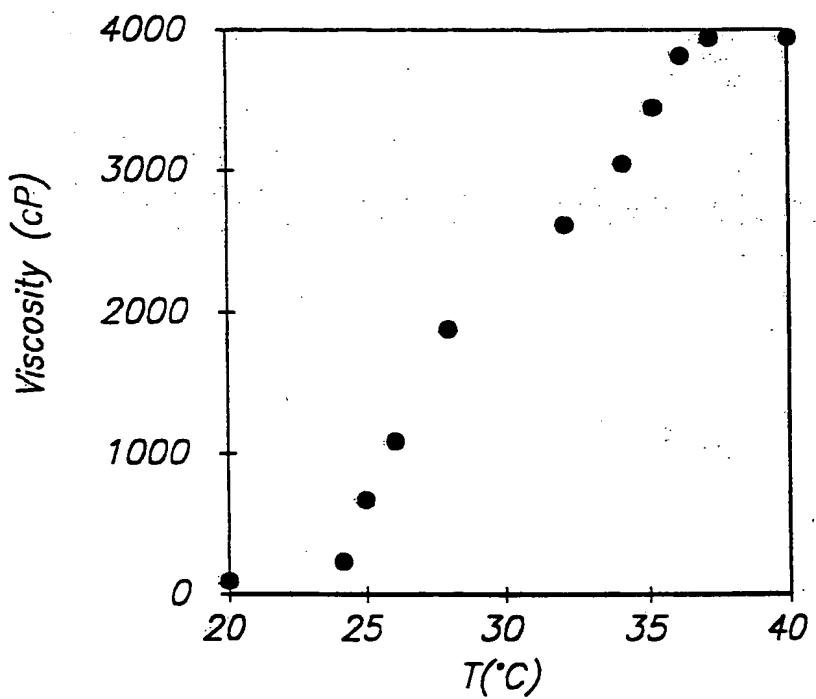


FIG. 15

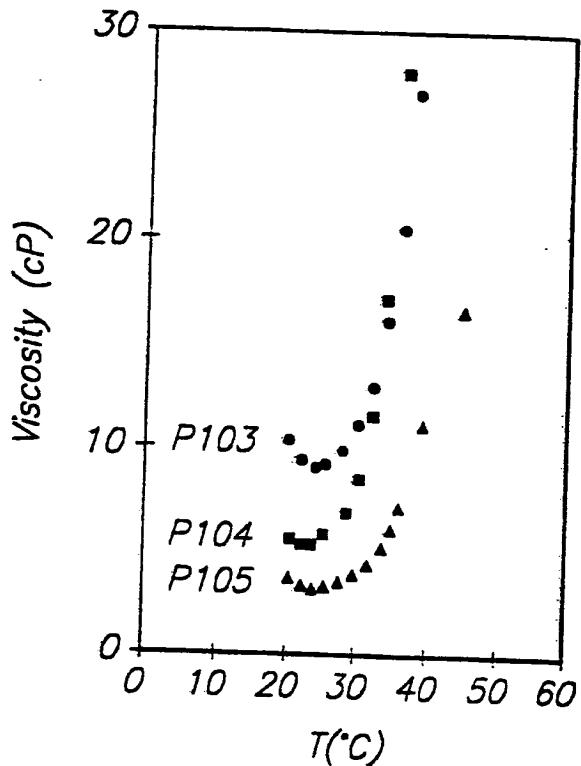


FIG. 16

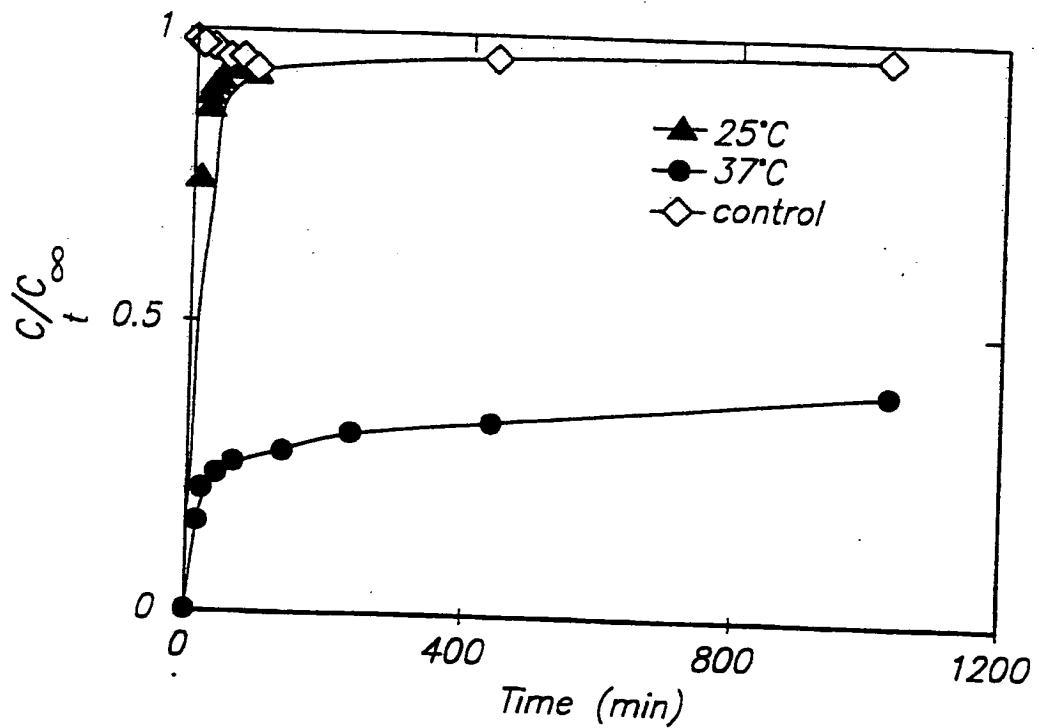


FIG. 17

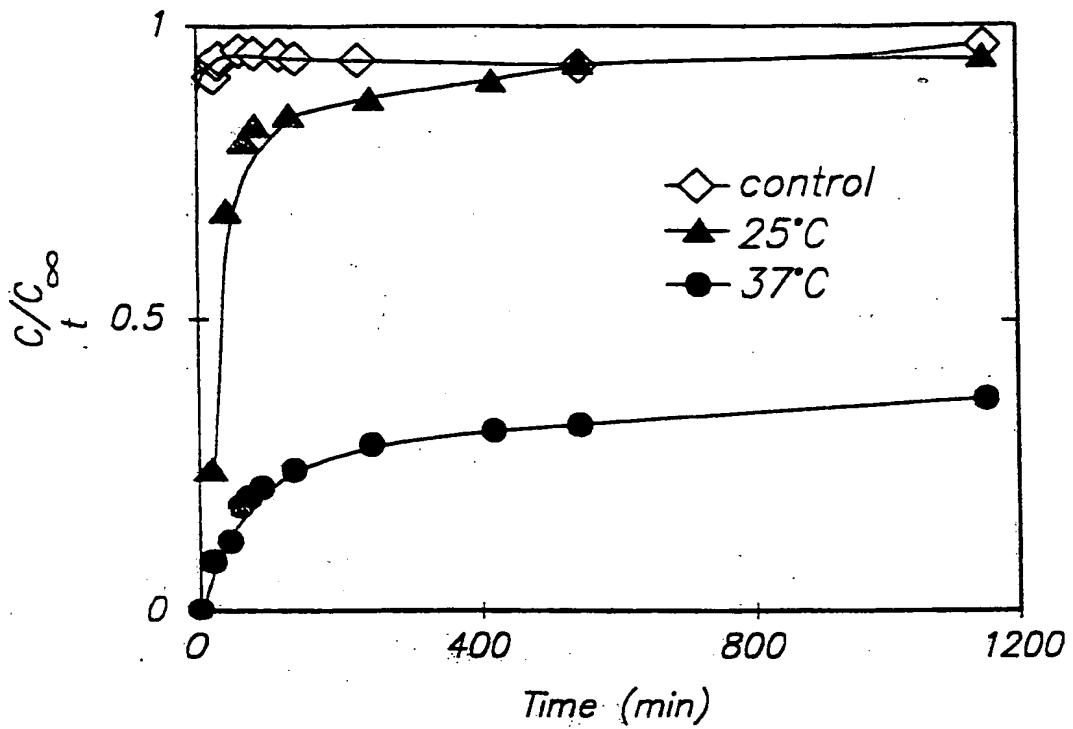


FIG. 18

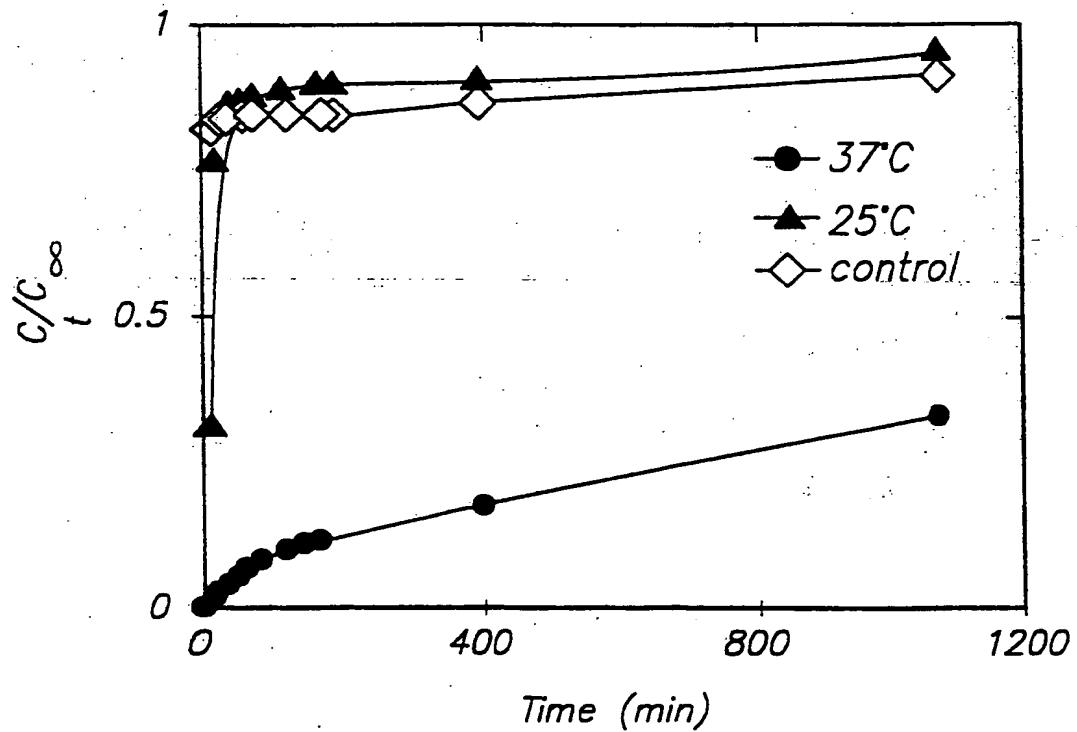


FIG. 19

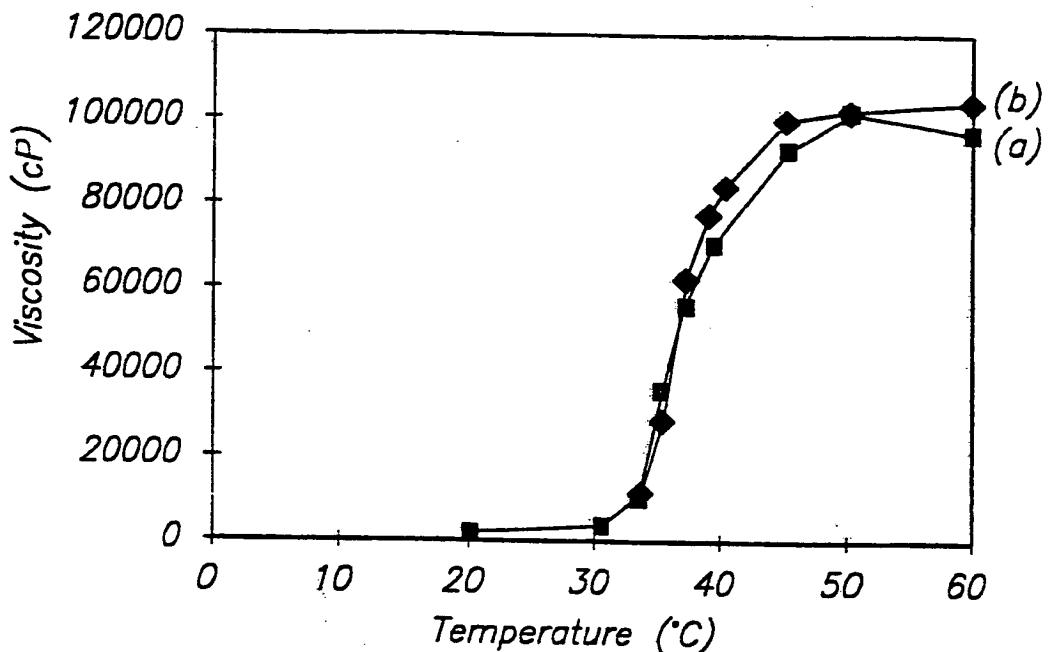


FIG. 20

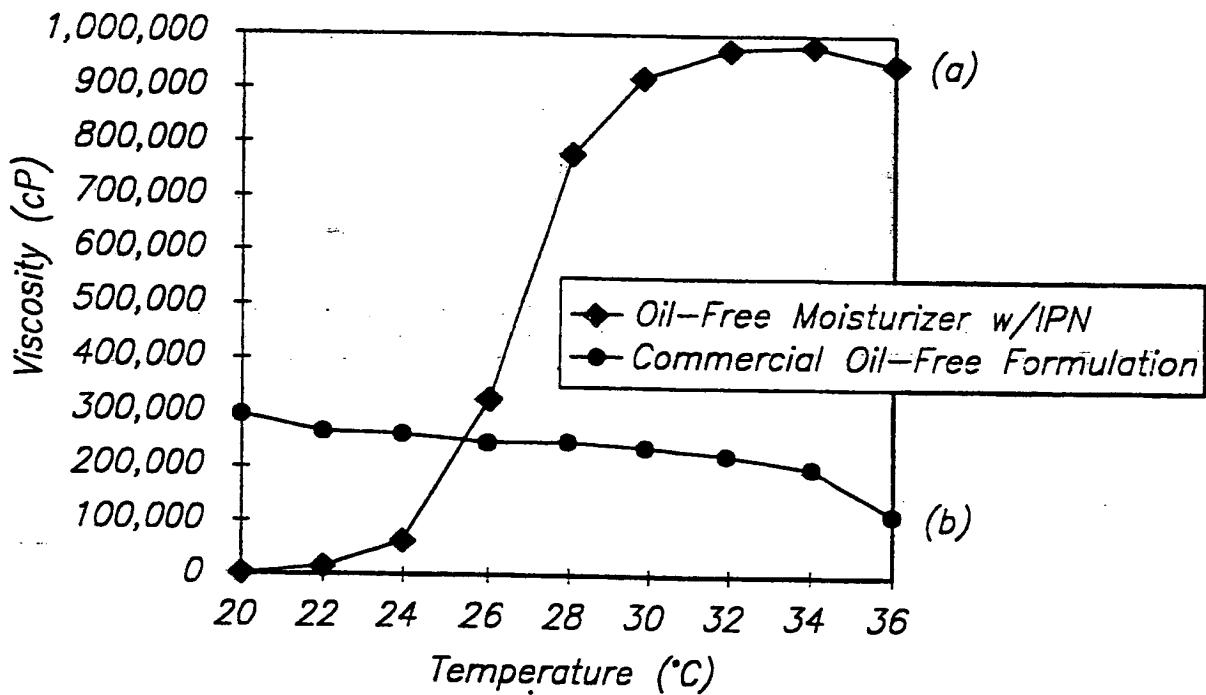


FIG. 21

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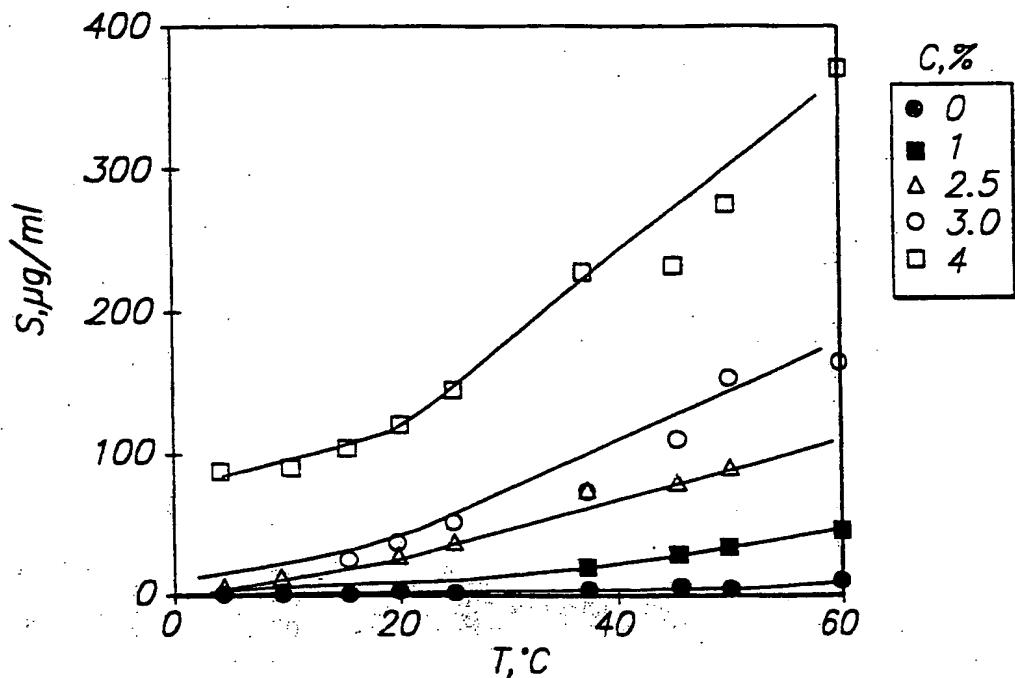


FIG. 22A

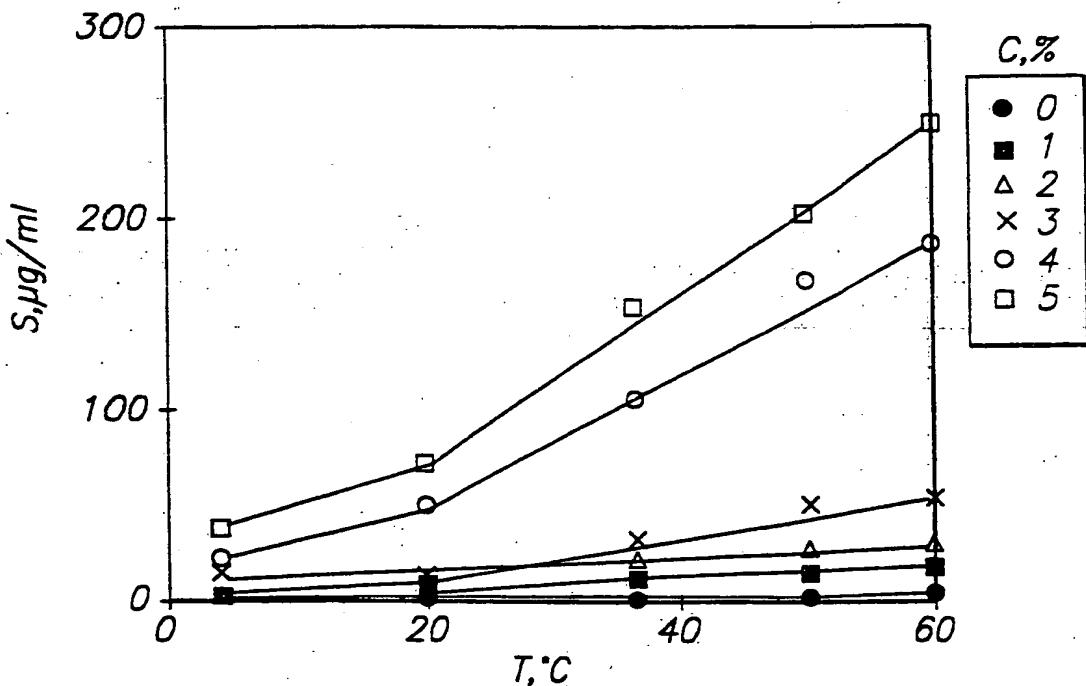


FIG. 22B

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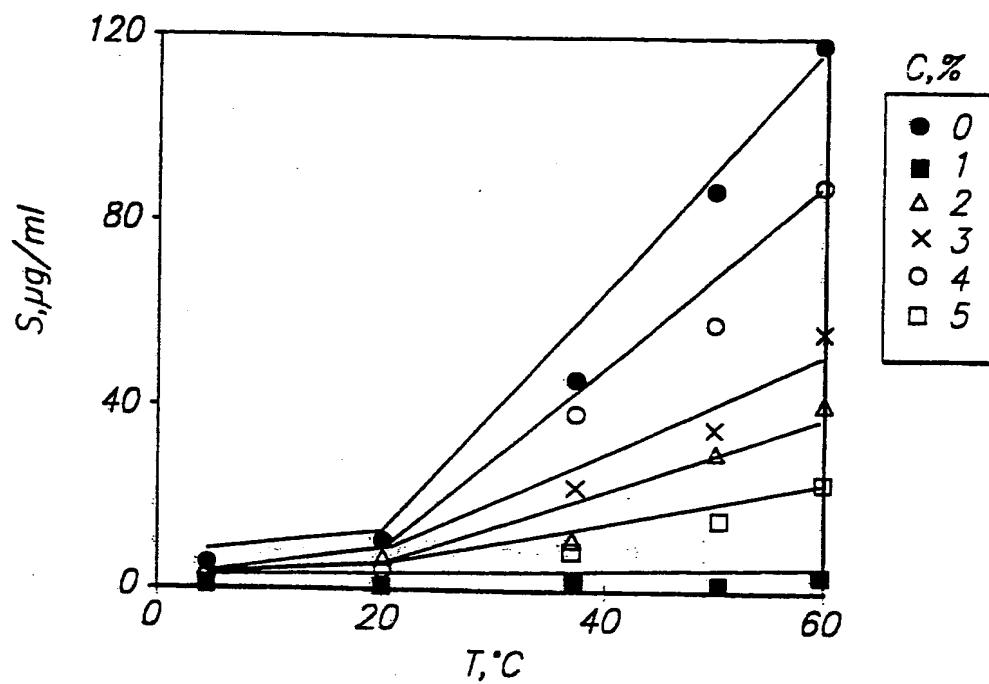


FIG. 22C

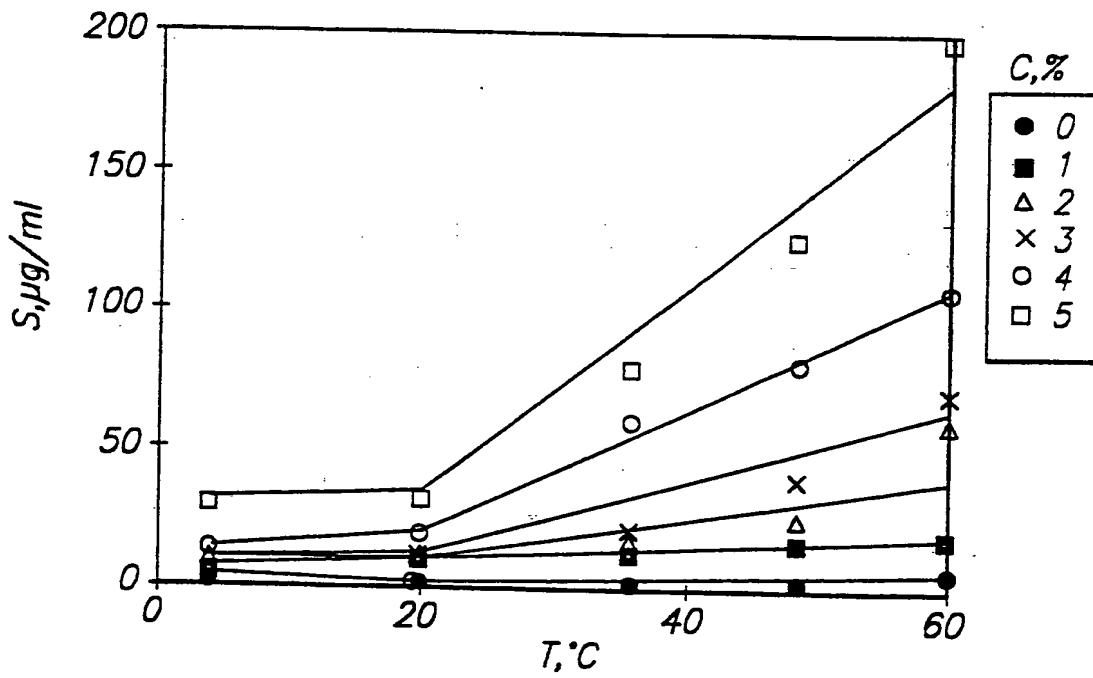


FIG. 22D

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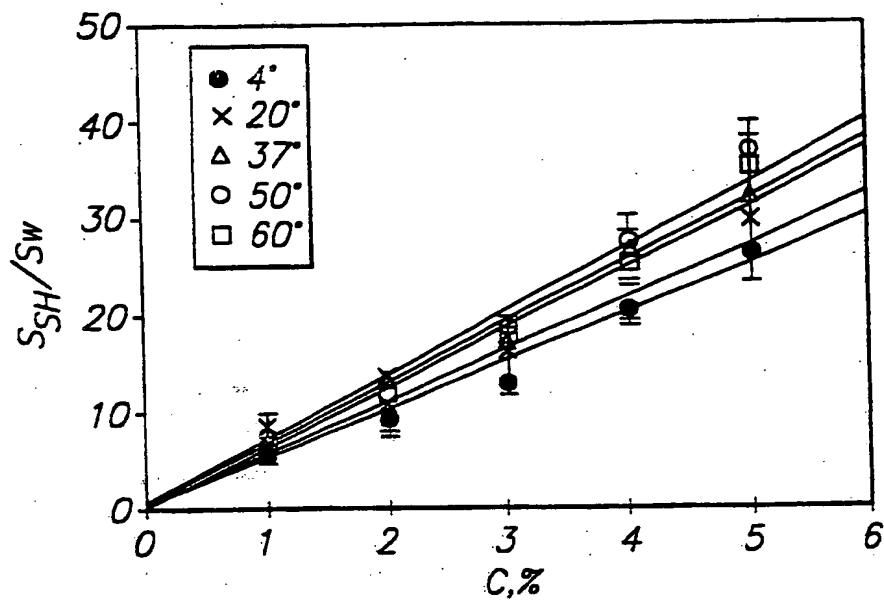


FIG. 23

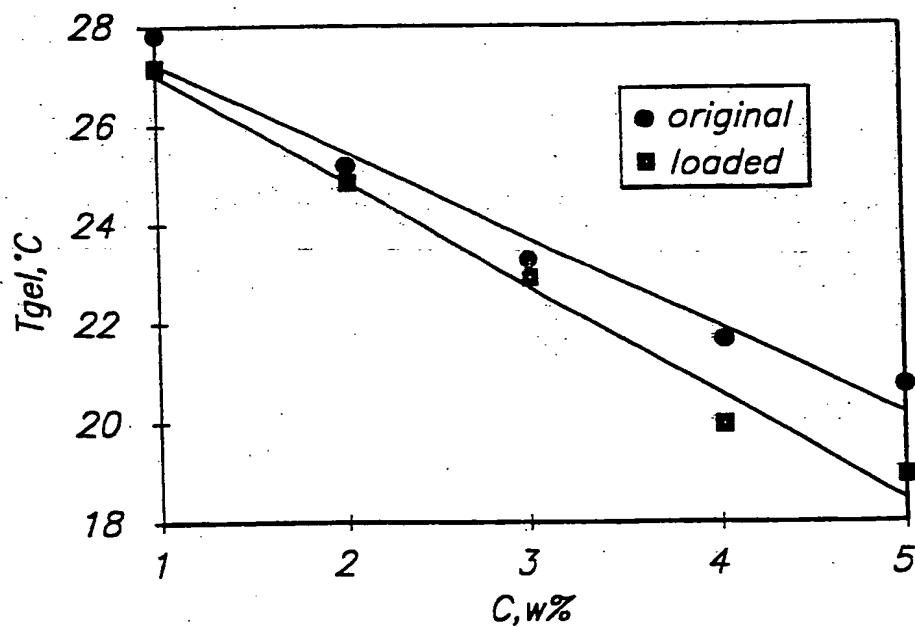


FIG. 24

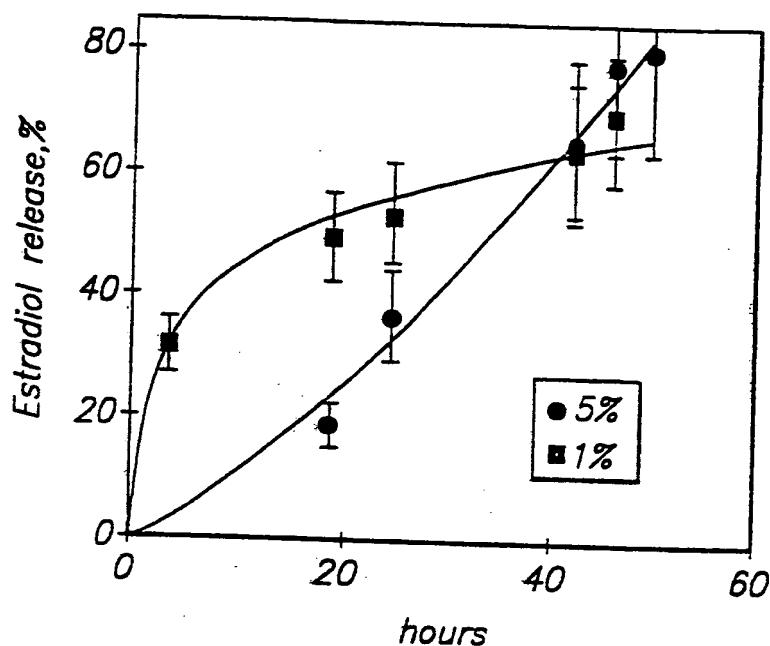


FIG. 25A

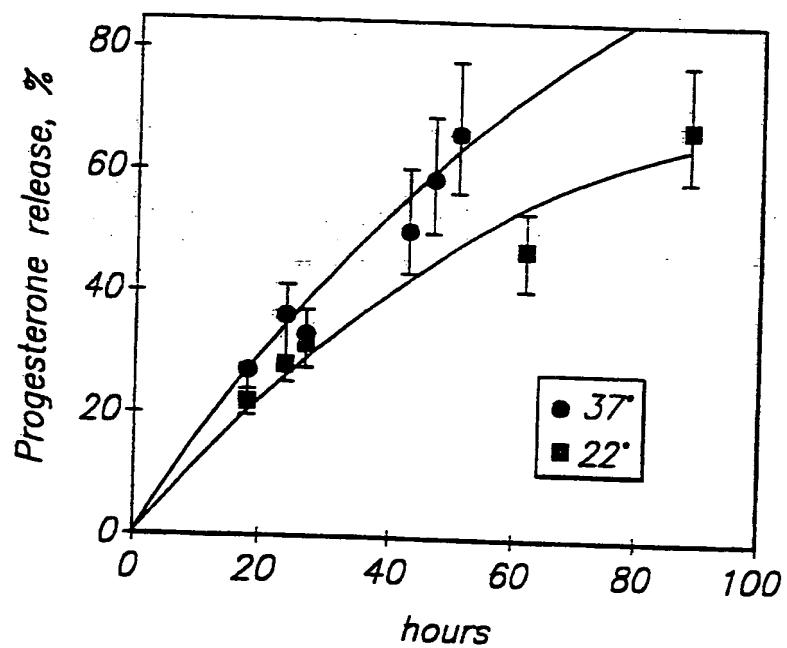


FIG. 25B

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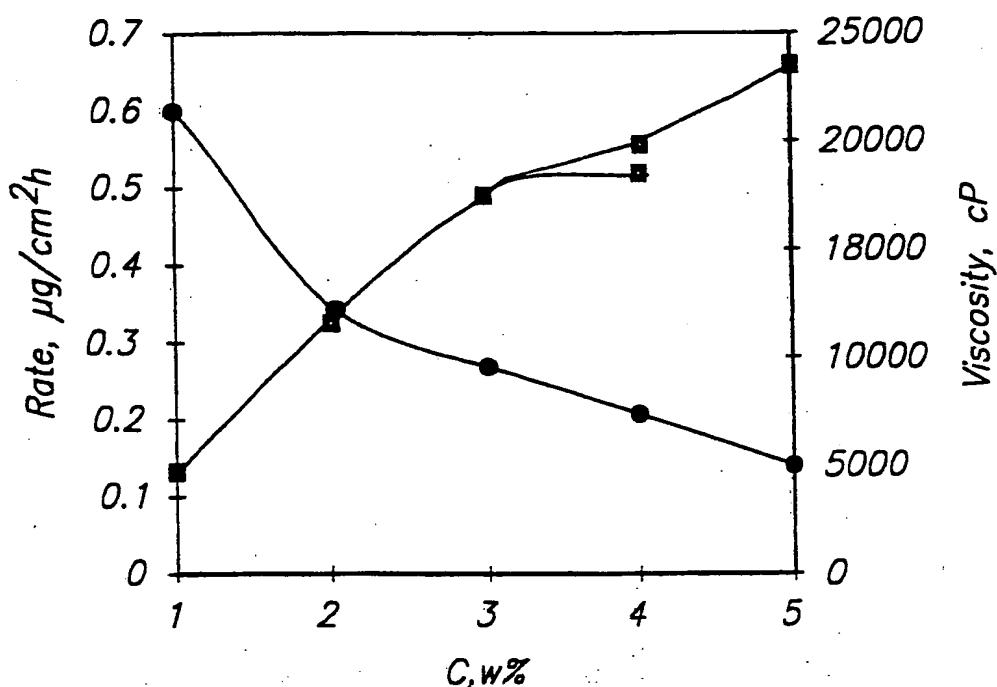


FIG. 26

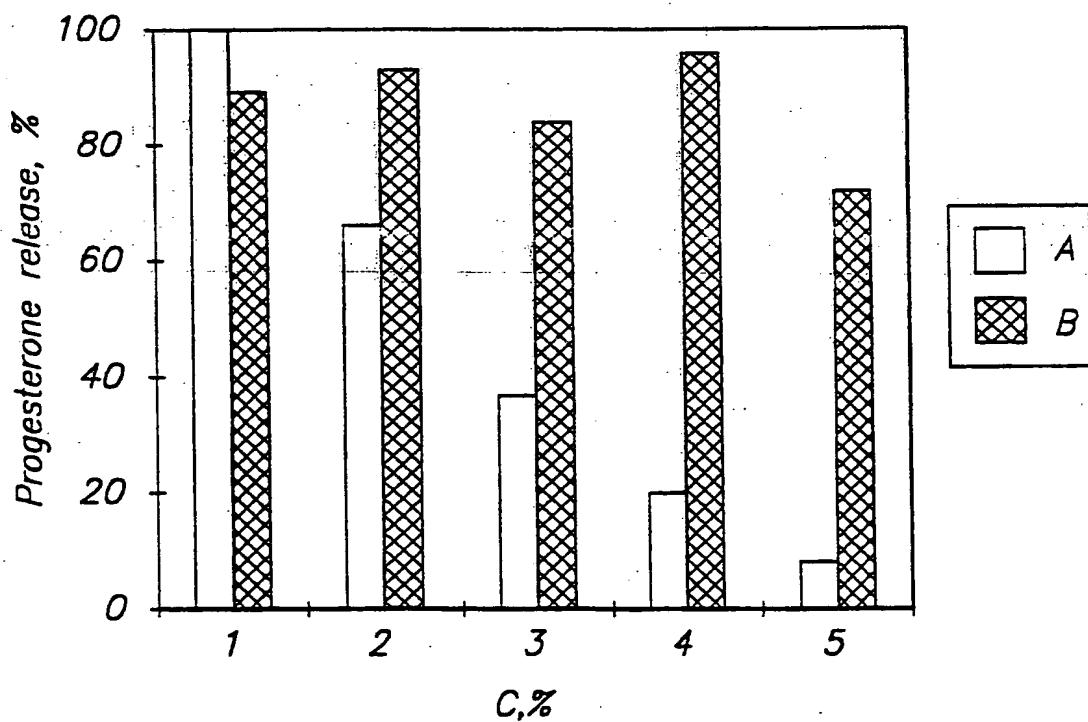


FIG. 27

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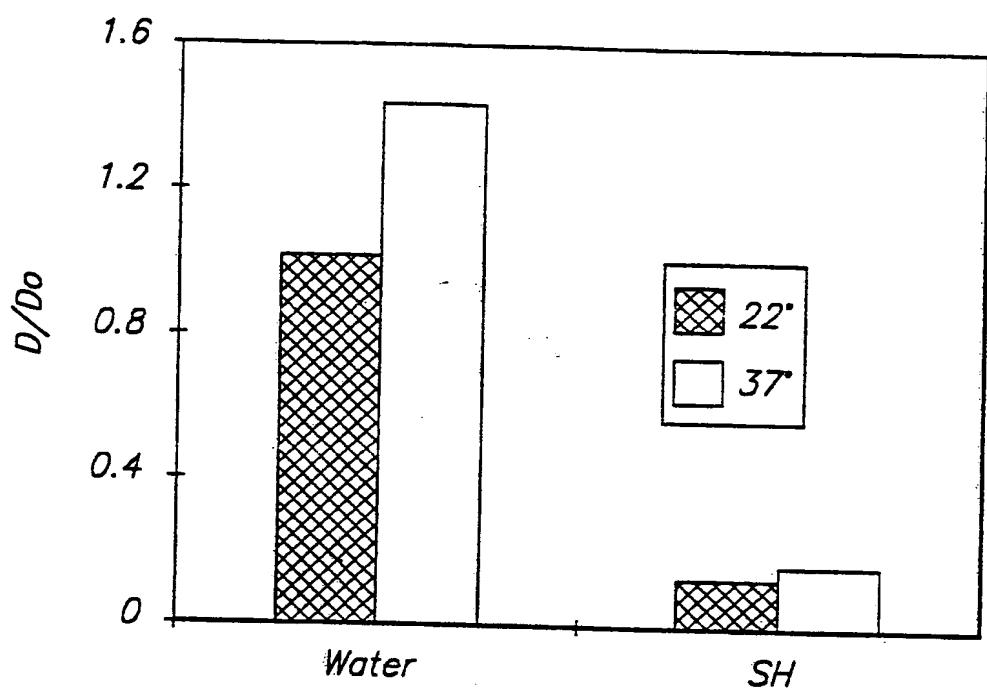


FIG. 28

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US98/08931

A. CLASSIFICATION OF SUBJECT MATTER

IPC(6) : A61K 7/00, 7/021, 7/025, 7/06, 7/09, 7/16, 7/32, 7/42, 31/74

US CL : Please See Extra Sheet

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 424/49, 59, 63, 54, 65, 70.1, 70.2, 70.7, 78.02, 70.08, 400, 401, 405

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
NONEElectronic data base consulted during the international search (name of data base and, where practicable, search terms used)
APS: COSMETIC, POLYACRYLIC ACID, POLYMER NETWORK, POLOXAMER

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document with indication, where appropriate, of the relevant passages	Relevant to claim No.
A, P	US 5,662,892 A (BOLICH, JR. et al.) 02 September 1997, see entire document.	1-38
Y	US 5,106,609 A (BOLICH, JR et al.) 21 April 1992, see entire document.	1-38

 Further documents are listed in the continuation of Box C. See patent family annex.

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"C" document referring to an oral disclosure, use, exhibition or other means	"Z"	document member of the same patent family
"P" document published prior to the international filing date but later than the priority date claimed		

Date of the actual completion of the international search
03 AUGUST 1998

Date of mailing of the international search report

02 OCT 1998

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Authorized officer

SHELLEY A. DODSON

Telephone No. (703) 305-1235

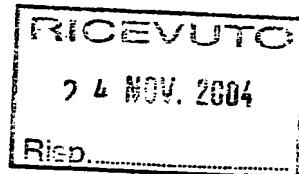


INTERNATIONAL SEARCH REPORT

International application No.
PCT/US98/08931

A. CLASSIFICATION OF SUBJECT MATTER:

US CL : 424/49, 59, 63, 64, 65, 70.1, 70.2, 70.7, 78.02, 70.02, 400, 401, 405



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